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Item 2 (a) of the provisional agenda

ANNOTATIONS TO THE PROVISIONAL AGENDA

Note by the Executive Secretary

CONTENTS

		Paragraphs	Page
I.	ANNOTATIONS TO THE PROVISIONAL AGENDA	1 - 81	1
II.	LIST OF DOCUMENTS		17

I. ANNOTATIONS TO THE PROVISIONAL AGENDA

1. Opening of the session

1. The eleventh session of the Subsidiary Body for Scientific and Technological Advice (SBSTA) is scheduled to be opened by the Chairman at 4 p.m. on Monday, 25 October 1999.

2. Organizational matters

(a) Adoption of the agenda

2. The provisional agenda for the eleventh session of the SBSTA will be presented for adoption. It may need to be adjusted on the basis of action taken by the Conference of the Parties (COP) at the first meeting of its fifth session.

(b) Organization of the work of the session

(i) General approach to the session

3. The SBSTA will meet from the afternoon of Monday, 25 October, until early in the following week. Upon completion of the work of the SBSTA, the Chairman will report to the Conference of the Parties on results achieved and on any outstanding issues. The subsidiary bodies will draft decisions and conclusions by Monday, 1 November and Wednesday, 3 November to be recommended to the COP for consideration and adoption thereafter.

(ii) Schedule

4. Following consultations with the Chairmen of the subsidiary bodies, a tentative schedule of meetings has been included in document FCCC/CP/1999/1.

5. The SBSTA may aim to complete its work on items allocated to it separately by Monday, 1 November. Items 3, 4, 5, 6 and 7 will be taken up initially in a joint meeting of the subsidiary bodies, scheduled for the morning of Tuesday, 26 October. The subsidiary bodies should aim to complete their work on these items by Wednesday, 3 November.

6. The scheduling of meetings for the session will be based on the availability of facilities during normal working hours. To facilitate the work of Parties, provision has been made for the holding of two simultaneous meetings, with full interpretation, from 10 a.m. to 1 p.m., and from 3 p.m. to 6 p.m., during the entire period when the subsidiary bodies are meeting, including Saturday, 30 October. It is anticipated that either formal or informal meetings will be held every evening, from 7 p.m. to 10 p.m. There will also be some facilities for informal meetings without interpretation. Delegations are urged to use these facilities fully by attending all meetings promptly at the scheduled time.

(c) Election of officers

7. The Chairman of the SBSTA will be elected by the Conference of the Parties during the first meeting of its fifth session, on the morning of Monday, 25 October. Pursuant to Rule 27 of the draft rules of procedure being applied,[1] each subsidiary body shall elect its own Vice-Chairman and Rapporteur. The Chairman of the SBSTA, following consultations with the regional groups, will propose nominations for these two positions and seek the confirmation of the SBSTA. Early agreement on these nominations will enable the SBSTA to commence its substantive work in an efficient manner.

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[1] FCCC/CP/1996/2.

3. Implementation of Article 4, paragraphs 8 and 9, of the Convention (decision 3/CP.3[2] and Article 2, paragraph 3 and Article 3, paragraph 14, of the Kyoto Protocol)

8. **Background:** By its decision 5/CP.4,[3] the Conference of the Parties requested the SBI and the Subsidiary Body for Scientific and Technological Advice (SBSTA) to continue consideration of the implementation of Article 4.8 and 4.9 of the Convention at their tenth and eleventh sessions, and to report thereon to the Conference of the Parties at its fifth session. The COP also decided to implement the programme of work set out in the annex to that decision, which included the organization of an expert workshop. This workshop is scheduled to be held in Bonn from 21 to 24 September 1999, in accordance with the terms of reference for the workshop adopted by the SBSTA at its tenth session (FCCC/SBSTA/1999/6, annex I).

9. **Action:** The SBSTA and the SBI will have before them the conclusions of the workshop (FCCC/SB/1999/9). In accordance with the above-mentioned programme of work, the subsidiary bodies are to consider the outcome of the workshop and prepare a report, including conclusions and/or a draft decision for consideration by COP 5, to assist the COP in identifying initial actions to be taken in implementing Article 4.8 and 4.9 of the Convention, as well as Articles 2.3 and 3.14 of the Kyoto Protocol.

4. Procedures and mechanisms relating to compliance under the Kyoto Protocol

10. **Background:** The joint working group on compliance (JWG) was convened during the tenth sessions of the subsidiary bodies, at which time it adopted its work programme contained in document FCCC/SBI/1999/8, annex II. The JWG agreed that the work programme would include an opportunity, in October 1999, for an informal exchange of views and information on compliance. The co-Chairs of the JWG will provide the SBI and the SBSTA with an informal report on this event, which is scheduled to take place in Vienna, Austria, on 6 and 7 October.

11. Under its work programme, the JWG invited Parties to provide submissions to the secretariat in response to questions related to a compliance system under the Kyoto Protocol. Submissions received from Parties are contained in document FCCC/SB/1999/MISC.12. The JWG also requested the co-Chairs, supported by the secretariat, to produce a synthesis of all proposals by Parties and to include elements related to a compliance system under the Kyoto Protocol. The JWG will have before it document FCCC/SB/1999/7 and Add.1 containing elements of a compliance system and a synthesis of proposals by Parties.

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[2] For the full texts of decisions adopted by the Conference of the Parties at its third session, see document FCCC/CP/1997/7/Add.1.

[3] For the full texts of decisions adopted by the Conference of the Parties at its fourth session, see document FCCC/CP/1998/16/Add.1.

12. **Action**: The JWG may wish to review the proposals and information contained in the above-mentioned documents, with a view to developing further the elements of a comprehensive compliance system under the Kyoto Protocol. The JWG, in accordance with decision 8/CP.4, is to report on the progress made in its work, through the SBI and the SBSTA, to COP 5. The COP may wish to consider the establishment of an ad hoc working group.

5. Activities implemented jointly under the pilot phase

13. **Background:** The COP, by its decision 5/CP.1,[4] established the pilot phase of activities implemented jointly (AIJ) and called for a conclusive decision to be taken on the pilot phase, and the progression beyond that, no later than the end of the present decade. In response to decision 6/CP.4, which reiterated decision 5/CP.1 and also referred to decision 7/CP.4 on the work programme on the mechanisms of the Kyoto Protocol, the subsidiary bodies, at their tenth sessions, agreed to undertake a comprehensive review of the AIJ pilot phase at their eleventh sessions, with a view to preparing a recommendation to COP 5 on further steps (FCCC/SBSTA/1999/6, paragraph 89 (g)).

14. The comprehensive review would cover the list of issues referred to in paragraph 89 (c)(i)-(x) of the above document. The subsidiary bodies had requested that the secretariat prepare a report reflecting submissions from Parties on that list of issues in the context of the reporting framework for the AIJ pilot phase. Parties were invited to submit views by 7 July 1999 (FCCC/SBSTA/1999/6, paragraph 89 (d)-(e)).

15. Document FCCC/SB/1999/5 on the AIJ pilot phase has, therefore, two main parts and an addendum: part one contains a report on issues to be addressed in a comprehensive review of the AIJ pilot phase; part two is the (annual) third synthesis report on the AIJ pilot phase, called for in decision 5/CP.1, which will assist the COP in reviewing the progress of the pilot phase; and the addendum contains tables on all AIJ projects and a draft revised uniform reporting format based on inputs by Parties to the secretariat on their experience in using the uniform reporting format adopted in decision 10/CP.3.

16. **Action:** The SBSTA and the SBI may wish to take note of document FCCC/SB/1999/5. The SBSTA and the SBI may also wish to consider the revised uniform reporting format contained in the addendum to that document and prepare a recommendation to COP 5 on possible further steps, with a view to taking a conclusive decision on the AIJ pilot phase and the progression beyond, before the end of the present decade.

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[4] For the full texts of decisions adopted by the Conference of the Parties at its first session, see document FCCC/CP/1995/7/Add.1

6. Mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

17. **Background:** By its decision 7/CP.4, the COP agreed on a work programme on the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol, including the list of elements annexed to that decision, to be undertaken with priority given to the clean development mechanism, and with a view to taking decisions on all the mechanisms at its sixth session. It invited Parties to submit proposals on principles, modalities, rules and guidelines for the mechanisms (subsequently compiled as document FCCC/SB/1999/INF.2 and addenda) and requested the secretariat to prepare a plan for facilitating capacity-building on the mechanisms to be considered by the subsidiary bodies at their tenth sessions.

18. In taking note of this synthesis of proposals by Parties, the subsidiary bodies, at their tenth sessions, requested the Chairmen to prepare, with the assistance of the secretariat, a revised and consolidated synthesis of proposals, identified by sources, for consideration at their eleventh sessions (FCCC/SBSTA/1999/6, paragraph 94 (d)). This second synthesis of proposals, which takes into account decision 7/CP.4, views expressed by Parties at the tenth sessions of the subsidiary bodies, and further submissions by Parties received by 31 July 1999 (document FCCC/SB/1999/MISC.10 and Add.1), is contained in document FCCC/SB/1999/8.

19. This revised and consolidated synthesis of proposals by Parties is in four parts: part one contains the definitions and abbreviations used throughout the document; and parts two, three and four contain the proposals by Parties on: (i) the nature and scope, (ii) the methodological and operational issues, and (iii) the institutional issues pertaining to Articles 6, 12 and 17. For matters of a technical nature which require further inputs by Parties, the structure foresees the inclusion of appendices on each of the mechanisms, as appropriate.

20. The SBSTA and the SBI, at their tenth sessions, also took note of an initial framework for the plan for facilitating capacity-building under decision 7/CP.4 and requested the secretariat to prepare a plan for facilitating capacity-building related to the mechanisms (FCCC/SBSTA/1999/6, paragraph 94 (a) and (e)). The plan (FCCC/SB/1999/6), and further steps, will be considered under provisional agenda item 7, Capacity-building.

21. **Action:** The SBSTA and the SBI may wish to consider the revised and consolidated synthesis of proposals in document FCCC/SB/1999/8 and the submissions by Parties in the miscellaneous documents FCCC/SB/1999/MISC.10 and Add.1. The synthesis document contains a proposal on possible action by the SBSTA and the SBI, including action on a draft negotiating text on the principles, modalities, rules and guidelines for the mechanisms, to be prepared by the Chairmen for consideration at the twelfth sessions of the subsidiary bodies; on further proposals by Parties, in particular on issues related to the appendices included in the synthesis document for each mechanism; and on a workshop on mechanisms to be held in March/April 2000, provided sufficient funding for this purpose is available in a timely manner. The SBSTA and the SBI are invited to provide further guidance to the Chairmen on how to proceed with the work programme on mechanisms under decision 7/CP.4, with a view to

decisions being taken at the sixth session of the COP, including, where appropriate, recommendations to the first session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. The SBSTA and the SBI are to report to the COP, as appropriate, on the outcome of their deliberations.

7. Capacity-building

22. **Background:** The issue of capacity-building touches on a range of needs and activities related to the implementation of the Convention and the Kyoto Protocol. A number of decisions by the Conference of the Parties at its fourth session contain guidance on the issue.[5]

23. A proposal by the Group of 77 and China for a draft decision on capacity-building for developing countries is contained in document FCCC/SB/1999/MISC.9. A plan for facilitating capacity-building related to the Kyoto Protocol mechanisms is contained in document FCCC/SB/1999/6. This plan, requested by the subsidiary bodies at their tenth sessions (see paragraph 20 above) was prepared by the secretariat based on views expressed by Parties. Submissions by Parties on this matter received by 31 July 1999 are contained in document FCCC/SB/1999/MISC.11.

24. Additional information on capacity-building relating to the global climate observing systems, the development and transfer of technologies, the preparation of national communications, as well as the activities of the Global Environment Facility is contained in documents FCCC/SBSTA/1999/10, FCCC/SBSTA/1999/11, FCCC/SBI/1999/INF.7 and FCCC/CP/1999/3 respectively.

25. A revised version of the inter-agency capacity-building project proposal for the Clean Development Mechanism is contained in document FCCC/SBSTA/1999/INF.8. It is being made available to Parties for their information following a request by the SBSTA at its tenth session. The revised version builds on the views of Parties on capacity-building, as reflected in document FCCC/SB/1999/6.

26. **Action:** Parties may wish to consider the contents of the above-mentioned documents and come prepared with views on how the issue of capacity-building under the Convention and the Kyoto Protocol might best be addressed in an integrated manner, bearing in mind its different substantive elements. The SBSTA and the SBI may wish to recommend to the COP the adoption of a draft decision on capacity-building.

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[5] Decisions by the Conference of the Parties containing elements related to the issue of capacity-building include: 2/CP.4, Additional guidance to the operating entity of the financial mechanism; 4/CP.4, Development and transfer of technologies; 5/CP.4, Implementation of Articles 4.8 and 4.9 of the Convention (decision 3/CP.3 and Articles 2.3 and 3.14 of the Kyoto Protocol); 6/CP.4, Activities implemented jointly under the pilot phase; 7/CP.4, Work programme on mechanisms of the Kyoto Protocol; 12/CP.4, Initial national communications from Parties not included in Annex I to the Convention; and 14/CP.4, Research and systematic observation.

8. National communications from Parties included in Annex I to the Convention

(a) Guidelines for the preparation of national communications[6]

27. **Background:** At its tenth session, the SBSTA concluded that discussions on revisions to part II of the guidelines for the preparation of national communications by Parties included in Annex I to the Convention should continue at its eleventh session. It requested the secretariat to prepare a document reflecting the status of discussions on the draft text of part II of the guidelines at the close of the tenth sessions (FCCC/SBSTA/1999/6, paragraph 27 (h)).

28. Also at its tenth session, the SBSTA had before it preliminary draft guidance for reporting on systematic observation prepared by the Global Climate Observing System (GCOS) secretariat. Noting that this guidance was undergoing further review, the SBSTA decided to consider the issue at its eleventh session and urged the GCOS secretariat to make the revised draft available in sufficient time for this session (FCCC/SBSTA/1999/6, paragraph 75 (b)).

29. The SBSTA will have before it a note by the secretariat containing a revised draft text of part II of the guidelines (FCCC/SBSTA/1999/13), referred to as 'the Chairman's revised draft text', an addendum which reflects the status of discussions on the draft text of the guidelines at the close of the tenth session (FCCC/SBSTA/1999/13/Add.1), referred to as 'working paper No. 4'and an addendum containing draft guidance for reporting on global climate observing systems from the GCOS secretariat (FCCC/SBSTA/1999/13/Add.2).

30. **Action:** The SBSTA may wish to consider these documents with a view to reaching agreement on the proposed revisions to the UNFCCC guidelines at this session and on a draft decision for consideration by the COP. The SBSTA may further wish to provide the SBI with information on this matter for its consideration, including any draft decision. The adoption of revised guidelines by the COP at this session would provide Annex I Parties with adequate time to prepare their third national communications. Their adoption could also expedite the implementation of the work programme on methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol, as some of the elements covered in that work programme would build on the revised guidelines.

31. The SBSTA may also wish to consider the information contained in documents FCCC/SBSTA/1999/13 and Add.1 and determine whether the Chairman's revised draft text or working paper No. 4 should serve as a basis for further discussions.

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[6] A draft decision on guidelines for the preparation of national communications by Parties included in Annex I to the Convention, part I: UNFCCC reporting guidelines on annual inventories, was recommended by the subsidiary bodies at their tenth sessions for adoption by the COP at its fifth session (FCCC/SBSTA/1999/6/Add.1).

32. The SBSTA may also wish to consider the information contained in document FCCC/SBSTA/1999/13/Add.2 and decide whether this information might be reflected in part II of the guidelines. (Refer also to SBI agenda item 8 (b)).

(b) "Best practices" in policies and measures

33. **Background:** By its decision 8/CP.4, the Conference of the Parties requested the secretariat to prepare a report on "best practices" in policies and measures for consideration by the SBSTA at its eleventh session, based on Annex I Party national communications and their reviews and additional information submitted by Parties by 15 August 1999, as well as any other relevant information, with a view to strengthening the sharing of experience and exchange of information. It also requested the secretariat to organize a workshop to assess "best practices" in policies and measures on the basis of the conclusions of the SBSTA at its eleventh session, and report the results to the Conference of the Parties at its sixth session. The Government of Denmark has kindly offered to host this workshop in Copenhagen from 11 to 13 April 2000.

34. In response to the above-mentioned request, the SBSTA will have before it document FCCC/SBSTA/1999/8, which provides an overview of the information contained in second national communications and in-depth review reports on policies and measures and their links to greenhouse gas emissions. This document presents possible approaches to assessing "best practices" in policies and measures as well as issues for consideration at the workshop. The SBSTA will also have before it document FCCC/SBSTA/1999/MISC.10 containing submissions from Parties.

35. **Action:** The SBSTA may wish to take note of these documents and provide guidance to the secretariat on approaches to the consideration of "best practices" in policies and measures, including possible subjects for discussion at the Copenhagen workshop in April 2000. The SBSTA will report to the COP on its deliberations, as appropriate.

9. Methodological issues

(a) Land-use, land-use change and forestry

36. **Background:** The SBSTA, at its tenth session, decided to continue consideration of land-use, land-use change and forestry issues at its eleventh session. In particular, it:

(i) Invited Parties to review, and where possible respond to, the questions posed in tables 1 and 2 of document FCCC/SBSTA/1999/5, and to identify any additional policy or procedural questions, by 16 August 1999. Submissions from Parties are contained in document FCCC/SBSTA/1999/MISC.7;

(ii) Decided to consider further the process and timing for the analysis of the information to be provided by the special report being prepared by the

Intergovernmental Panel on Climate Change on the subject, and the process for developing its work programme on land-use, land-use change and forestry in order to fulfil, *inter alia*, the provisions of decision 9/CP.4; and

(iii) Decided to begin consideration of the need for country-specific data and information and its relationship to a decision-making framework in the context of the requirements of the Kyoto Protocol. Parties were invited to provide submissions on this subject by 16 August 1999. These submissions are also contained in document FCCC/SBSTA/1999/MISC.7.

37. The SBSTA also invited the IPCC to provide an in-depth progress report, and to convene a special side event, on the draft IPCC special report on land-use, land-use change and forestry during the eleventh session of the SBSTA (FCCC/SBSTA/1999/6, paragraph 41). The special side event is scheduled to be held on Tuesday, 26 October, from 3 p.m. to 7 p.m..

38. **Action:** Parties may wish to come prepared to make short presentations of approximately 5 minutes, during any contact group meetings which may be convened on this subject, to facilitate substantive discussion on the issues mentioned in paragraph 36. The SBSTA will report to the COP, as appropriate, on its deliberations.

(b) National systems, adjustments and guidelines under Articles 5, 7 and 8 of the Kyoto Protocol

39. **Background:** The SBSTA, at its tenth session, took note of the information provided by the secretariat on a work programme on methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol, contained in document FCCC/SB/1999/2, and endorsed this work programme, noting that some aspects relating to Article 3 of the Kyoto Protocol may need to be further discussed in relation to Articles 5, 7 and 8 of that Protocol. The work programme deals with preparatory activities related to those articles of the Protocol pertaining to the first session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, as elaborated in decision 8/CP.4.

40. The SBSTA decided to consider the characteristics of national systems and issues relating to adjustments, referred to in Article 5 of the Kyoto Protocol, at its eleventh session. It requested Parties to provide views on these items by 15 August 1999. These submissions are contained in document FCCC/SBSTA/1999/MISC.9 and Add.1. It also requested the secretariat to organize a workshop on these topics prior to its twelfth session (FCCC/SBSTA/1999/6, paragraph 34).

41. A representative of the IPCC Programme on National Greenhouse Gas Inventories will present an oral progress report on its work on uncertainty and good practices in inventory management, in view of the relevance of this work to this item of the provisional agenda.

42. **Action:** Parties may wish to come prepared to provide their views on national systems and issues relating to adjustments on the basis of views received from Parties and on the above-mentioned work programme, with the aim of facilitating further consideration of guidelines and modalities under Article 5 of the Kyoto Protocol.

43. In view of the relationship between issues pertaining to reporting and review under Articles 7 and 8 and compliance-related elements of the Kyoto Protocol, Parties may also wish to come prepared with views on further activities to be undertaken to complete the work programme, particularly those which will be necessary for developing guidelines under Articles 7 and 8 of the Kyoto Protocol. The SBSTA will report to the COP on its deliberations, as appropriate.

(c) Emissions resulting from fuel used for international transportation

44. **Background:** By its decision 2/CP.3, the COP urged the SBSTA to further elaborate on the inclusion of emissions based upon fuel sold to ships or aircraft engaged in international transport in the overall greenhouse gas inventories of Parties.

45. The SBSTA, at its tenth session, decided to continue its work in accordance with decision 2/CP.3, paragraph 4, and to consider the IPCC *Special Report on Aviation and the Global Atmosphere*, at its eleventh session (FCCC/SBSTA/1999/6, paragraph 46 (f)). It invited Parties to submit their views on these issues to the secretariat by 16 August 1999. Submissions from Parties are contained in document FCCC/SBSTA/1999/MISC.8.

46. At the same session, the SBSTA invited the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) to inform it of their work plans relating to emissions based on fuel sold to ships or aircraft engaged in international transport and to provide regular progress reports at future sessions of the SBSTA (FCCC/SBSTA/1999/6, paragraph 46 (d)). Representatives of IMO and ICAO have been invited to address the SBSTA on their activities.

47. The SBSTA also invited the secretariat to explore ways to further strengthen the exchange of information between ICAO, IMO and the SBSTA. The secretariat will deliver a report to the SBSTA during this session, on activities it has undertaken in this area.

48. **Action:** The SBSTA may wish to consider the views of Parties contained in document FCCC/SBSTA/1999/MISC.8 and the IPCC Special Report on Aviation and the Global Atmosphere with a view to identifying its future work in accordance with decision 2/CP.3.

(d) Impact of single projects on emissions in the commitment period

49. **Background:** By its decision 1/CP.3, paragraph 5 (d), the COP identified, as an issue to be considered by COP 4, the "consideration of and, as appropriate, action on suitable

methodologies to address the situation of Parties listed in Annex B to the Kyoto Protocol for which single projects would have a significant proportional impact on emissions in the commitment period". By its decision 16/CP.4, the COP requested the SBSTA to report any additional information on this issue to it at its fifth session and resolved to take a conclusive decision on the matter, as appropriate, at that session.

50. Parties are invited to refer to document FCCC/SBSTA/1999/MISC.3, which contains submissions from Parties on this issue.

51. **Action:** The SBSTA may wish to consider the information provided by Parties contained in document FCCC/SBSTA/1999/MISC.3, and any additional information relevant to the issue, with a view to drafting a decision on this item to be recommended for adoption by the COP, in accordance with decision 16/CP.4.

(e) Scientific and methodological aspects of the proposal by Brazil

52. **Background:** The Conference of the Parties, at its third session, decided that the proposal presented by Brazil in document FCCC/AGBM/1997/MISC.1/Add.3 should be referred to the SBSTA for advice on the methodological and scientific aspects of the proposal. At its fourth session, the COP requested the SBSTA to inform it, at its fifth session, of any relevant information, taking into account the results of ongoing scientific activities and information from a workshop to be organized by Brazil on that issue.

53. The delegation of Brazil provided a preliminary report to the SBSTA at its tenth session on activities relevant to this proposal, including information from a workshop on this issue which it had organized. The SBSTA noted this information and decided to consider the scientific and methodological aspects of the proposal by Brazil at its eleventh session. It invited the delegation of Brazil to further inform the SBSTA of the results of its workshop and provide it with other relevant information at that session (FCCC/SBSTA/1999/6, paragraph 56).

54. **Action:** The SBSTA may wish to consider any new information on this topic.

(f) Other matters

55. The SBSTA, at its tenth session, noted that the report on the expert meeting convened by the IPCC-OECD-IEA Programme on National Greenhouse Gas Inventories on "Evaluating approaches for estimating net emissions of carbon dioxide from forest harvesting and wood products" (Dakar, 5-7 May 1998) was now available from the IPCC.[7] It decided to continue its discussion on this issue at its eleventh session (FCCC/SBSTA/1999/6, paragraph 57).

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[7] The meeting report is available on the web at http://www.iea.org/ipcc. It may also be ordered from: IPCC-OECD-IEA Programme on National Greenhouse Gas Inventories, 2 rue Andre-Pascal, 75775 Paris Cedex 16, France.

56. The secretariat will deliver a report on progress made in providing information on decision tools to evaluate climate change impacts and adaptation strategies.

57. **Action:** Parties may wish to come prepared to express their views on this issue.

10. Development and transfer of technologies

58. At its first session, the COP decided, *inter alia*, "to review, at the second session of the Conference of the Parties, and at each session of the Conference of the Parties thereafter, the implementation of Article 4.5 and 4.1(c) of the Convention as a separate agenda item" (decision 13/CP.1). This decision was reaffirmed by decisions 7/CP.2,[5] 9/CP.3 and 4/CP.4.

(a) Status of the consultative process (decision 4/CP.4)

59. **Background:** By its decision 4/CP.4, the COP requested the Chairman of the SBSTA to establish a consultative process on the transfer of technology. At its tenth session, the SBSTA endorsed the proposal by the Chairman that the secretariat organize three regional workshops, one in Africa, one in Asia and the Pacific Islands, and one in Latin America and the Caribbean. It also recognized that, given the time and resources available, it would not be possible to complete the regional workshops before the fifth session of the COP, and invited the Chairman of the SBSTA, with the assistance of the secretariat, to complete the regional workshops by early 2000, and to report to the SBSTA at its twelfth session, with a view to taking a decision by COP 6 (FCCC/SBSTA/1999/6, paragraph 69 (c) and (d)).

60. The SBSTA will have before it a progress report on the development and transfer of technologies (FCCC/SBSTA/1999/11). This report includes information on the outcome of the African regional workshop held in Arusha, Tanzania, 16-18 August 1999. The report also provides information on the CTI/Industry Joint Seminar on Technology Diffusion in Eastern Europe organized by the Climate Technology Initiative (CTI), in cooperation with the UNFCCC secretariat, which was held in Bratislava, Slovakia, 14-17 July 1999.

61. **Action:** The SBSTA may wish to consider the progress of the transfer of technology consultative process with a view to providing further guidance to the Chairman of the SBSTA on this activity. As requested by decision 13/CP.1, the SBSTA will report relevant information to the COP.

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[5] For the full texts of decisions adopted by the Conference of the Parties at its second session, see document FCCC/CP/1996/15/Add.1

(b) Ways and means of limiting emissions of hydrofluorocarbons and perfluorocarbons

62. **Background**: By its decision 13/CP.4, the COP invited Parties, the relevant bodies of the Montreal Protocol, the IPCC, intergovernmental organizations and non-governmental organizations to provide information to the secretariat, by 15 July 1999, on available and potential ways and means of limiting emissions of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), including their use as replacements for ozone-depleting substances, and encouraged the convening of a workshop on the issue by the IPCC and the Technology and Economic Assessment Panel of the Montreal Protocol (TEAP) in 1999. It requested the secretariat to compile the information, including, if available, the conclusions of the workshop, for consideration by the SBSTA at its eleventh session. It further requested the SBSTA to report on this information to the Conference of the Parties at its fifth session, and to seek further guidance from the Conference of the Parties on this matter at that session.

63. The secretariat developed an on-line form to assist Parties and organizations to provide information via its web site. Submissions by Parties and intergovernmental organizations are provided in document FCCC/SBSTA/1999/MISC.6. The full texts of all submissions by Parties, intergovernmental organizations and non-governmental organizations is available on the web site of the UNFCCC secretariat (http://www.unfccc.de/program/wam/). Computer diskettes with all submissions will be available for Parties at the session.

64. The SBSTA will also have before it document FCCC/SBSTA/1999/INF.7, which provides an overview of the submissions and a summary of the joint IPCC/TEAP expert meeting on options for the limitation of emissions of HFCs and PFCs, held in Petten, the Netherlands, 26-28 May 1999. Representatives of the IPCC and TEAP have been invited to deliver statements to the SBSTA on the workshop and its report.

65. **Action:** Parties may wish to come prepared with views on:

(i) Future activities concerning the relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate (bearing in mind the activities under way in other intergovernmental organizations);

(ii) Whether Parties and other organizations should be further encouraged to submit information on ways and means of limiting emissions of HFCs and PFCs; and

(iii) Future activities to be undertaken by the secretariat on these matters, including whether it should maintain a database on ways and means of limiting emissions of HFCs and PFCs.

(c) Coastal adaptation technologies

66. **Background:** At its tenth session, the SBSTA agreed to consider, at its eleventh session, the issues contained in the technical paper on coastal adaptation technologies (FCCC/TP/1999/1) (FCCC/SBSTA/1999/6, para. 70 (a)). Submissions from Parties on options to accelerate and sustain the development and transfer of coastal adaptation technologies are contained in document FCCC/SBSTA/1999/MISC.11.

67. **Action:** The SBSTA may wish to consider the submissions by Parties, determine what additional activities are warranted and provide any necessary guidance to the secretariat.

(d) Other matters

68. The secretariat will also provide a report on the status of activities undertaken in cooperation with the Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD).

11. Cooperation with relevant international organizations

(a) Scientific organizations

69. The Chairman of the Intergovernmental Panel on Climate Change will present an overview of the work of that body in an oral report. It is expected that his report will include information on: the IPCC third assessment report, technology transfer, land-use, land-use change and forestry and other topics.

(b) United Nations bodies

70. **Background:** The secretariat is engaged in consultations with the United Nations Conference on Trade and Development (UNCTAD), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO) in an effort to enhance cooperation with these bodies and to ensure that their climate change related activities, in particular their inputs to the UNFCCC process, are responsive to the needs of the process and reflect the comparative advantage of the agency concerned.

71. The SBSTA, at its tenth session, noted that many relevant activities were under way in other United Nations bodies and that there was a need to bring these within the context of the UNFCCC process and for them to be consistent with decisions of the COP, in particular with decision 7/CP.4. The SBSTA welcomed the initiative of the secretariat to bring together the four above-mentioned United Nations bodies and encouraged it to continue drawing upon their contributions for the development of a joint project on capacity-building for developing countries for the clean development mechanism, taking careful account of relevant decisions and

conclusions of the COP and its subsidiary bodies. The SBSTA requested the secretariat to make further information available on this project, and to continue to explore with current and other future partners other possible areas of activity (FCCC/SBSTA/1999/6, para. 18).

72. **Action:** The secretariat will present an oral report on its efforts to promote cooperation with relevant United Nations bodies. Parties may wish to consider the project proposal contained in document FCCC/SBSTA/1999/INF.8, which was developed in cooperation with the United Nations agencies mentioned above, as a contribution to the totality of the capacity-building needs discussed under item 7.

(c) Other conventions

73. **Background:** The SBSTA, at its tenth session, noted with appreciation the reports provided by representatives of the United Nations Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (CBD) on the substantive linkages between climate change and those conventions. The SBSTA welcomed the efforts of the secretariat to explore possible ways of cooperating with other convention secretariats in order to strengthen cooperation on issues of common interest. It encouraged the secretariat to continue consultations with the relevant secretariats and to inform it on the outcome of these consultations (FCCC/SBSTA/1999/6, para. 22).

74. **Action:** The secretariat will present an oral report on the activities it has undertaken to promote cooperation with relevant conventions in the area of climate change.

12. Research and systematic observation

75. **Background:** The COP, at its fourth session, adopted a decision aimed at strengthening the global observing systems for climate, including an invitation to the agencies participating in the Climate Agenda, through the Global Climate Observing System secretariat, to undertake various activities to this end (decision 14/CP.4).

76. The SBSTA, at its tenth session, invited the agencies participating in the Climate Agenda, through the GCOS secretariat, to report to the SBSTA at its eleventh session, on their actions and plans, in accordance with decision 14/CP.4. The SBSTA also recalled paragraphs 1 (c) and 5 of decision 2/CP.4, requesting the GEF to report to the COP on its activities with regard to providing funding to developing countries to build capacity for participation in systematic observational networks (FCCC/SBSTA/1999/6, paragraph 75 (c) and (e)).

77. The SBSTA will have before it document FCCC/SBSTA/1999/10 containing information relevant to decision 14/CP.4. A representative of the GCOS secretariat is also expected to present an oral report on the activities of that body, pursuant to decision 14/CP.4.

FCCC/SBSTA/1999/10 and come prepared with suggestions for future activities, particularly in relation to a process to identify the specific needs and priorities of developing countries.

13. Roster of experts nominated by Parties

79. **Background:** At its seventh session, the SBSTA concluded that, to date, there had not been sufficient experience to fully evaluate the utility of the roster of experts or its use by the secretariat. It requested the secretariat to continue using the roster when providing the SBSTA with advice on technologies and methodologies, and to prepare a further evaluation of the roster for submission to the Conference of the Parties at its fifth session (FCCC/SBSTA/1997/14, paragraph 31 (g)). This further evaluation is contained in document FCCC/SBSTA/1999/9.

80. **Action:** Parties may wish to consider this evaluation and provide guidance to the secretariat on the future evolution of the rosters of experts, particularly on matters related to integration of the rosters, improving completeness of the information and confidentiality, the use of the methodology roster for technical reviews of greenhouse gas inventories from Annex I Parties and a process for increasing the number of fields of expertise for possible future activities.

14. Report on the session

81. Because of the time that is likely to be needed for considering all items on the agenda, a complete draft text of the report may not be available at the end of the session. The SBSTA may wish to adopt draft decisions or substantive conclusions, and authorize the Rapporteur to complete the report after the session with the guidance of the Chairman and the assistance of the secretariat. Subject to the availability of sufficient time for their translation, conclusions will be made available in all languages.

II. LIST OF DOCUMENTS

Documents prepared for the session

FCCC/SBSTA/1999/6	Report of the Subsidiary Body for Scientific and Technological Advice on its tenth session, Bonn, 31 May-11 June 1999
FCCC/SBSTA/1999/6/Add.1	Report of the Subsidiary Body for Scientific and Technological Advice on its tenth session, Bonn, 31 May-11 June 1999. Addendum. Draft decision on guidelines for the preparation of national communications by Parties included in Annex I to the Convention. Part I: UNFCCC reporting guidelines on annual inventories
FCCC/SBSTA/1999/7	Provisional agenda and annotations. Note by the Executive Secretary
FCCC/SBSTA/1999/8	National communications from Parties included in Annex I to the Convention. "Best practices" in policies and measures. Report by the secretariat
FCCC/SBSTA/1999/9	Roster of experts nominated by Parties. Evaluation of the roster of experts
FCCC/SBSTA/1999/10	Research and systematic observation. Issues related to the Global Climate Observing System
FCCC/SBSTA/1999/11	Development and transfer of technologies. Progress report, including a report of the African workshop
FCCC/SBSTA/1999/12	Methods used to collect data, estimate and report emissions from international bunker fuels
FCCC/SBSTA/1999/13	National communications from Parties included in Annex I to the Convention. Guidelines for the preparation of national communications from Parties included in Annex I to the Convention. Part II: Projections, policies, measures, financial resources and technology transfer and other matters

FCCC/SBSTA/1999/13/Add.1	National communications from Parties included in Annex I to the Convention. Guidelines for the preparation of national communications from Parties included in Annex I to the Convention. Part II: Projections, policies, measures, financial resources and technology transfer and other matters. Addendum. Status of the draft Chairman's text of part II of the guidelines at the close of the tenth sessions
FCCC/SBSTA/1999/13/Add.2	National communications from Parties included in Annex I to the Convention. Guidelines for the preparation of national communications from Parties included in Annex I to the Convention. Part II: Projections, policies, measures, financial resources and technology transfer and other matters. Addendum. Draft guidance for reporting on global climate observation systems
FCCC/SBSTA/1999/INF.7	Development and transfer of technologies. Ways and means of limiting emissions of hydrofluorocarbons and perfluorocarbons
FCCC/SBSTA/1999/INF.8	Capacity-building. Plan for facilitating capacity-building under decision 7/CP.4
FCCC/SBSTA/1999/MISC.6	Development and transfer of technologies. Ways and means of limiting emissions of hydrofluorocarbons and perfluorocarbons. Submissions from Parties and intergovernmental organizations.
FCCC/SBSTA/1999/MISC.7	Methodological issues. Land-use, land-use change and forestry. Review and response to the questions posed in tables 1 and 2 of document FCCC/SBSTA/1999/5. Comments related to the need for country-specific data and information and its relationship to a decision-making framework in the context of the requirements of the Kyoto Protocol. Submissions by Parties
FCCC/SBSTA/1999/MISC.8	Methodological issues. Emissions resulting from fuel used for international transportation. Submissions from Parties

FCCC/SBSTA/1999/MISC.9 and Add.1	Methodological issues. National systems, adjustments and guidelines under Articles 5, 7 and 8 of the Kyoto Protocol. Characteristics of national systems and issues relating to adjustments referred to in Article 5 of the Kyoto Protocol. Submissions from Parties
FCCC/SBSTA/1999/MISC.10	National communications from Parties included in Annex I to the Convention. Views of Parties on "best practices" in policies and measures. Submissions by Parties
FCCC/SBSTA/1999/MISC.11	Development and transfer of technologies. Coastal adaptation technologies. Options to accelerate and sustain the development and transfer of coastal adaptation technologies. Submissions from Parties
FCCC/SB/1999/5 and Add.1	Activities implemented jointly under the pilot phase. Issues to be addressed in the review of the pilot phase, including the third synthesis report. Note by the secretariat
FCCC/SB/1999/6	Mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol. Plan for facilitating capacity-building. Note by the Chairmen.
FCCC/SB/1999/7 and Add.1	Procedures and mechanisms relating to compliance under the Kyoto Protocol. Co-Chairs' synthesis of submissions on procedures and mechanisms relating to compliance, including elements of a compliance system
FCCC/SB/1999/8	Mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol. Synthesis of proposals by Parties on principles, modalities, rules and guidelines. Note by the Chairmen
FCCC/SB/1999/9	Implementation of Article 4, paragraphs 8 and 9 of the Convention. Report of the workshop on implementation of Article 4.8 and 4.9 of the Convention (decision 3/CP.3 and Articles 2.3 and 3.14 of the Kyoto Protocol)
FCCC/SB/1999/MISC.9	Capacity-building. Submission from a Party
FCCC/SB/1999/MISC.10 and Add.1	Mechanisms pursuant to Articles 6, 2 and 17 of the Kyoto Protocol. Further submissions from Parties on issues raised in decision 7/CP.4, paragraph 1 (a), (b) and (c)

FCCC/SB/1999/MISC.11	Mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol. Elements to be included in a plan for facilitating capacity-building related to the mechanisms. Submissions from Parties
FCCC/SB/1999/MISC.12	Procedures and mechanisms relating to compliance under the Kyoto Protocol. Views from Parties on procedures and mechanisms relating to compliance. Compilation of submissions from Parties

Other documents for the session

FCCC/CP/1998/16	Report of the Conference of the Parties on its fourth session, held at Buenos Aires from 2 to 14 November 1998. Part One: Proceedings
FCCC/CP/1998/16/Add.1	Report of the Conference of the Parties on its fourth session, held at Buenos Aires from 2 to 14 November 1998. Addendum. Part Two: Action taken by the Conference of the Parties at its fourth session
FCCC/SBSTA/1998/9	Report of the Subsidiary Body for Scientific and Technological Advice on its ninth session, Buenos Aires, 3-10 November 1998
FCCC/SBSTA/1999/MISC.3	Methodological issues. Other matters. Analyses of the information provided by the delegation of Iceland. Submissions by Parties. Note by the secretariat
FCCC/SB/1999/2	Methodological issues. Methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol. Note by the secretariat
FCCC/AGBM/1997/MISC.1/Add.3	Implementation of the Berlin mandate. Additional proposals from Parties. Addendum. Note by the secretariat
FCCC/TP/1999/1	Technical paper: Coastal adaptation technologies

Documents available for reference only

FCCC/SBSTA/1997/6	Report of the Subsidiary Body for Scientific and Technological Advice on its sixth session, Bonn, 28 July - 5 August 1997

FCCC/SBSTA/1998/6	Report of the Subsidiary Body for Scientific and Technological Advice on its eighth session, Bonn, 2-12 June 1998
FCCC/CP/1997/7/Add.1	Report of the Conference of the Parties on its third session, held at Kyoto from 1 to 11 December 1997. Part Two: Action taken by the Conference of the Parties at its third session
FCCC/CP/1996/15/Add.1	Report of the Conference of the Parties on its second session, held at Geneva from 8 to 19 July 1996. Part Two: Action taken by the Conference of the Parties at its second session
FCCC/CP/1995/7/Add.1	Report of the Conference of the Parties on its first session, held at Berlin from 28 March to 7 April 1995. Part Two: Action taken by the Conference of the Parties at its first session

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Bonn, 25 October - 5 November 1999
Item 2 (a) of the provisional agenda

ANNOTATIONS TO THE PROVISIONAL AGENDA

Note by the Executive Secretary

Corrigendum

(Paragraph 78)

Replace existing text with

78. **Action:** Parties may wish to consider the information contained in document FCCC/SBSTA/1999/10 and come prepared with suggestions for future activities, particularly in relation to a process to identify the specific needs and priorities of developing countries.

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NATIONAL COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION

"BEST PRACTICES" IN POLICIES AND MEASURES

Report by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 3	3
A.	Mandate	1	3
B.	Scope of the note	2	3
C.	Possible action by the SBSTA	3	3

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		Paragraphs	Page
II	"BEST PRACTICES" IN POLICIES AND MEASURES	4 - 29	3
A	Summary of Parties' views on "best practices"	4 - 9	3
B	Approach	10	4
C	Information derived from national communications and in-depth reviews	11 - 13	5
D	Possible issues for further consideration	14 - 15	5
E	Further possible analysis of "best practices"	16 - 21	7
F	Other sources of information on policies and measures	22 - 29	7

Annex

Indicative list of publications related to the consideration of policies and measures 10

I. INTRODUCTION

A. Mandate

1. The Conference of the Parties, by its decision 8/CP.4, requested the secretariat to prepare a report on "best practices" in policies and measures for consideration by the Subsidiary Body for Scientific and Technological Advice (SBSTA) at its eleventh session, based on Annex I Party national communications and their reviews and on additional information submitted by Parties by 15 August 1999, as well as any other relevant information, with a view to strengthening the sharing of experience and exchange of information. It also requested the secretariat to organize a workshop to assess "best practices" in policies and measures on the basis of the conclusions of the SBSTA, at its eleventh session, and to report the results to the Conference of the Parties at its sixth session (FCCC/CP/1998/16/Add.1, decision 8/CP.4, annex II). The Government of Denmark has kindly offered to host this workshop in Copenhagen from 11 to 13 April 2000.

B. Scope of the note

2. This document has been prepared in response to the above-mentioned request. It considers information contained in Parties' submissions, second national communications and in-depth review reports in relation to "best practices" in policies and measures. It also presents possible approaches to assessing "best practices" in policies and measures and suggests issues for consideration at the workshop. Document FCCC/SBSTA/1999/MISC.10 contains submissions from Parties related to "best practices" in policies and measures.

C. Possible action by the SBSTA

3. The SBSTA may wish to consider the information contained in this report and in document FCCC/SBSTA/1999/MISC.10 and to recommend approaches to sharing of experience and exchanging information on "best practices" in policies and measures, including possible topics for discussion at the Copenhagen workshop in April 2000, with a view to reporting results of the discussions to the Conference of the Parties at its sixth session.

II. "BEST PRACTICES" IN POLICIES AND MEASURES

A. Summary of Parties' views on "best practices"

4. The submissions received from five Parties (FCCC/SBSTA/1999/MISC.10) stressed the importance of sharing experience about "best practices" in policies and measures. Parties described those policies which they regard as "best practice", given their national circumstances. Some suggested possible approaches for initiating the exchange of experience on "best practices" and for defining this concept; these suggestions are summarized below.

5. **Australia** considers that inherent difficulties exist in developing an internationally applicable concept of "best practice" for greenhouse gas (GHG) mitigation policies, as policies need to be considered in the context of differing national circumstances. It may not be possible to develop a hierarchy of "best practices", given that a policy effective in one country may not be effective in another. For that reason, the concept of "good practice" in policy development may be more useful. This "good practice" may encompass the need for policies to fit into a national mitigation strategy, tailoring policies to national circumstances, equity, cost effectiveness, multiple benefits, involvement of all levels of society, research findings and linking mitigation policies with other government policy.

6. **The European Community** (EC) notes that the concept of "best practice" could refer to the optimum use of proven technology and techniques for cost-effectively reducing GHG emissions, best available technology or techniques and optimal development of policy. Furthermore, in general, policies and measures should aim to significantly reduce and minimize GHG emissions, comply with sustainable development and be transferable to other conditions. Indicators could be used in reporting on "best practices". The EC notes that, although policies and measures are currently mainly implemented at the national or regional level, the prospect of developing internationally coordinated policies and measures should not be excluded. The workshop could, through case studies, best practice guides and reports on new and future best practices, stimulate replication, provide information on innovative measures and facilitate technology transfer.

7. **Japan's** submission describes its policies and measures to mitigate GHG emissions. The descriptions encompass research efforts, targets for changes in activity levels, timing, involvement of various sectors etc.

8. **Switzerland's** submission contains fact sheets on various policies and measures covering a description of the various policies or measures; their objectives, schedule and status of implementation; indicators of success or estimate of impact and references to resources of documentation.

9. **The United States of America** believes it important to consider the elements and circumstances that most account for the success of individual policies and measures. In this regard it has found that policies are most successful when they are "best fits" in six basic ways. Policies should (i) be flexible to changing circumstances and regional differences, (ii) provide multiple benefits and not conflict with other policy goals, (iii) recognize existing institutional frameworks, established processes and transparent ways of public participation, (iv) be cost-effective, (v) match key attributes of the technologies they target, and (vi) be implemented with clear accountability and enforcement measures.

B. Approach

10. The secretariat gave detailed consideration to the information contained in the second national communications from Annex I Parties and corresponding in-depth review reports. It focused on those national communications which included a quantified description of policies and measures. Without specific guidance on the ways to consider the issue of "best practices" and given the different views expressed by Parties in their submissions, the secretariat only considered the extent to which it may be possible to identify which policies and measures were most successful in terms of GHG emission reductions. In this regard, it also considered whether it is possible to discern the link between policies and measures and actual and projected GHG emission trends, taking into account national circumstances.

C. Information derived from national communications and in-depth reviews

11. Annex I Parties vary considerably in the presentation of information about policies and measures in their second national communications. Some Parties do not quantify the amount of GHG emissions saved. Some rank their policies and measures or provide qualitative indications of their relative importance. Where quantified estimates of actual or projected reductions in GHG emissions are given, it is not always clear whether these are related to implemented or planned policies and measures. It is not obvious in many cases whether emission reduction estimates are provided cumulatively for a period of time or for a given year. Furthermore, the UNFCCC guidelines for the preparation of national communications do not require presentation of the underlying analysis. In general, sections on national circumstances, GHG inventories, policies and measures and projections are not sufficiently informative or analytical to allow the secretariat to establish the link between specific policies and measures and trends in GHG emissions, even at a high level of aggregation.

12. Additional information about policies and measures is made available to the secretariat during in-depth reviews. There are no obligations on Parties to provide specific types of information and often the focus is on developments since the publication of the national communication. Most of the information is of a qualitative nature. So, whilst the in-depth reviews add to the volume of information available to the secretariat, they do not enhance the comparability of that information or provide further insights into the nature of "best practice".

13. Taking into account the difficulties in analysing the information derived from national communications and in-depth reviews, the secretariat was not in a position to ascertain whether particular policies and measures may constitute "best practice". The lack of a common definition for this concept and differences in approaches among Parties also contributed to these difficulties. Given the desire of Annex I Parties to share information on this subject, the workshop planned for April 2000 in Copenhagen should provide an opportunity to establish a framework for such an exchange. Some possible approaches to the consideration of "best practices" which Parties may wish to consider in advance of the workshop are suggested below.

D. Possible issues for further consideration

14. Article 2.1(a) of the Kyoto Protocol requires each Annex I Party, in accordance with its national circumstances, to implement policies and measures in achieving its quantified emission limitation and reduction commitments under Article 3, whilst Article 2.1(b) requires Parties to share their experience and exchange information on such policies and measures, including developing ways of improving their comparability, transparency and effectiveness. Taking these Articles into account, Parties may wish to consider the objectives of the forthcoming Copenhagen workshop in terms of reaching a common understanding of what is meant by "best practices", how "best practices" can be assessed, how results can be shared between countries, and by developing ways in which analyses of "best practice" could be readily compared between countries.

15. Parties may wish to consider, *inter alia*, the following issues and questions for the workshop:

(a) What is the appropriate context for consideration of "best practices": the national or international level; should consideration be given to specific economic sectors or specific technologies ?

(b) To what extent could the concept of "best fit" be used when identifying "best practices"?

(c) Which criteria for assessment of "best practices" could be considered:

(i) GHG emissions saved, cost effectiveness, ancillary benefits, equity;
(ii) Compatibility with national circumstances and with the overall GHG mitigation strategy;
(iii) Compatibility with existing institutional framework in relation to other policy goals;
(iv) Optimum use of technology/techniques;
(v) Links to sustainable development;
(vi) Involvement of all stakeholders;
(vii) Replicability; flexibility;
(viii) Accountability and enforcement;
(ix) Use of research findings?

(d) Should key criteria be identified first and, if so, ranked in terms of importance ?

(e) What level of detail should be provided if some of the above criteria are considered relevant as a basis for further discussions ?

E. Further possible analysis of "best practices"

16. Having established criteria in relation to "best practices", Parties may then consider possible approaches to analysis and preferably quantitative monitoring. In this context the ongoing work in a number of intergovernmental organizations may be of particular importance (see section F and annex).

17. Parties may wish to consider the evaluation of planned policies and measures, monitoring of policies and measures in place and *ex post* appraisal of policies and measures.

18. Analysis could be conducted at an aggregate level or be more specific and disaggregated. Parties could conduct simple analysis that would allow for the isolation, for example, of temperature fluctuations, cross-border electricity trade, economic growth and other national circumstances from the effects of energy and environmental policy on GHG emission trends. This could be a starting point for more detailed analysis of particular policies and measures, with the aim of identifying successful ones and those that "make a difference".

19. Parties may wish to consider to what extent indicators could be used in consideration of "best practices" in policies and measures. They could be helpful in identifying the reasons behind particular patterns of, for example, energy use and thereby facilitate the planning and implementation of particularly relevant measures. Which indicators could be used for cross-country comparisons could also be a subject for deliberation.

20. Industry and businesses are key players in implementing "best practices" in the context of regulations which require "best available technology" or "best available technology not entailing excessive cost". Moreover, industries operating in competitive markets need to employ "best practices" to maintain and enhance their competitiveness and market share. For these reasons, many industries have developed systems or indicators called "benchmarking", which allow for comparisons and identification of potential performance improvement. Parties may wish to consider the role of industry in informing the debate on "best practices".

21. Parties may wish to share information about the key criteria they employ in assessing policies and measures and how they measure such criteria as GHG emissions saved, costs and ancillary benefits.

F. Other sources of information on policies and measures

22. A brief description is given here of some of the work which has been or is being conducted by international organizations which may be of relevance to discussions on "best practices" in policies and measures. Parties may wish to take into account existing work in deciding how to proceed in the context of the UNFCCC.

Intergovernmental Panel on Climate Change (IPCC) and United Nations Environment Programme (UNEP)

23. In September 1996, the IPCC decided to hold a workshop on 'Mitigation and Adaptation Cost Assessment, Concepts, Methods and Appropriate Use'. This was held at Risø, Denmark from 16 to 18 June 1997, hosted by the UNEP Collaborating Centre on Energy and Environment. As a result of the workshop a handbook has been published, following a full IPCC scientific review. This defines and clarifies cost concepts for use in the field of climate change. The specific purpose of the handbook is to (i) define, explain and discuss the relevant cost concepts and their limitations, (ii) establish correspondence across sectors, (iii) explain frequently used terminology, and (iv) illustrate the applicability of these cost concepts in the formulation of national climate change policy and programmes.

24. UNEP has developed guidelines as part of a Global Environment Facility project on the "Economics of Greenhouse Gas Limitations". Their aim is to establish a methodological framework for climate change mitigation assessment, with particular emphasis on the needs of developing countries, although many of the concepts are equally applicable to developed countries. The guideline document establishes a general overview of the main components of climate change mitigation assessment. This includes an outline of key economic concepts, scenario structure, common assumptions, modelling tools and country study assumptions.

25. The IPCC third assessment report is currently under preparation. Working Group III works on various chapters which might be of interest to Parties in considering "best practices" in policies and measures. In particular, the chapters entitled "Technical and economic potential of GHG emissions reduction", "Barriers, opportunities and market potential of technologies and practices", "Policies, measures and instruments", "Costing methodologies", "Global, regional and national costs and ancillary benefits of mitigation" and "Sectoral costs and ancillary benefits of mitigation" could be relevant.

Organisation for Economic Co-operation and Development (OECD)

26. The OECD has produced a number of papers related to policies and measures, in particular via the Annex I Expert Group. During the course of 1997 and 1998, the Annex I Expert Group produced 18 working papers on different aspects of policies and measures. These covered measures to reduce carbon dioxide emissions from road vehicles, coal and electricity subsidies, full cost pricing, carbon/energy taxation, energy efficiency standards for traded products, financing energy efficiency products in countries with economies in transition, GHG reduction options in agriculture and forestry, voluntary agreements with industry, emissions trading, marine and bunker fuel taxation, aviation fuel taxation, innovation in transport behaviour and technology, economic instruments, renewable energy sources in electricity generation, agricultural policy reform, energy utility voluntary agreements and electricity market reforms. In a recent publication, *National Climate Policies and the Kyoto Protocol*, the OECD outlines member countries' overall GHG emission and mitigation policy trends. The book also synthesizes

OECD recommendations from a wide body of environmental policy analysis, as well as from the policy studies mentioned above, to suggest a framework for domestic mitigation policy in the context of the Kyoto Protocol.

27. A workshop was held in Paris from 29 to 30 October 1997 to discuss "Greenhouse Gas Emission Projections and Estimates of the Effects of Measures: Moving Towards Good Practice". This resulted in an information paper which briefly covers methods for baseline and "with measures" projections, methods for estimating effects of individual measures, *ex post* verification, moving towards quality assurance and estimating the cost of GHG mitigation. The OECD and the IEA are currently organizing round tables to facilitate the exchange of information and experience among Annex I Parties on domestic mitigation policy. The round tables provide an opportunity for selected countries to highlight and discuss with other government representatives recent developments and results in a particular policy area. The first round table considered domestic GHG initiatives, and the second, policies in the energy supply sector.

International Energy Agency (IEA)

28. The IEA has published a series of books in the 'Policy Analysis Series', some of which are listed in the annex. The organization has been developing a set of energy indicators since 1995 in collaboration with Australia, Canada, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom of Great Britain and Nothern Ireland and the United States.

29. The IEA is currently conducting a project related to policies and measures in relation to meeting targets under the Kyoto Protocol and beyond. This work focuses on energy and draws on detailed energy indicator databases and historical energy end-use trends in OECD member States. Initial consideration will be given to past energy development in trying to understand the driving factors behind growth in energy services and factors related to technology development which cause fuel switching and improved energy efficiency.

Annex

INDICATIVE LIST OF PUBLICATIONS RELATED TO THE CONSIDERATION OF POLICIES AND MEASURES

The following publications may be of interest to Parties when considering approaches to the issue of "best practices" in policies and measures. The list, which is given in the alphabetic order of the titles, is not supposed to be exhaustive or represent the views of the secretariat on the merits of the approaches suggested in these publications.

Economics of Greenhouse Gas Limitations: Methodological Guidelines, 1998, UNEP, ISBN 87-550-2490-4

Economics of Greenhouse Gas Limitations: The Indirect Costs and Benefits of Greenhouse Gas Limitations, 1998, UNEP, ISBN 87-550-2458-0

Energy Efficiency Initiative: Energy Policy Analysis, Volumes 1 and 2, 1997, Danish Energy Agency, IEA, OECD, Energy Charter

Energy Policies of IEA Countries: 1997 Review, 1997, IEA, ISBN 92-64-15610-0

Greenhouse Gas Emission Projections and Estimates of the Effects of Measures: Moving Towards Good Practice, 1998, OECD, Ref: ENV/EPOC(98)10

Handbook on International Comparisons of Energy Efficiency in the Manufacturing Industry, Department of Science, Technology and Society, Utrecht University, 1998, ISBN 90-73958-41-5

Mitigation and Adaptation Cost Assessment Concepts, Methods and Appropriate Use, 1998, UNEP, ISBN: 87-550 2435-1

National Climate Policies and the Kyoto Protocol, 1999, OECD

OECD round tables and presentations: see http://www.oecd.org/env/cc

Reforming Energy and Transport Subsidies, 1997, OECD, ISBN 92-64-15681-X

The Link between Energy and Human Activity, IEA, ISBN 92-64-15690-9

Transport, Energy and Climate Change, 1997, IEA, ISBN 92-64-15691-7

Voluntary Actions for Energy-Related CO_2 Abatement, 1997, IEA, ISBN 92-64-14657-1

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ROSTERS OF EXPERTS NOMINATED BY PARTIES

Note by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 6	2
	A. Mandate	1 - 3	2
	B. Scope of the note	4 - 5	2
	C. Possible action by the SBSTA	6	3
II.	BACKGROUND	7 - 9	3
III.	EXPERIENCE IN USING THE ROSTERS	10 - 20	4
IV.	OPTIONS FOR THE FUTURE	21 - 29	6
	Annex		
	Consolidated list of major fields of expertise and number of experts in the roster for each field		8

I. INTRODUCTION

A. Mandate

1. At its seventh session, the Subsidiary Body for Scientific and Technological Advice (SBSTA) concluded that, until then, there had not been sufficient experience to fully evaluate the utility of the roster of experts or its use by the secretariat. It requested the secretariat to continue to use the roster when providing the SBSTA with advice on technologies and methodologies, and to prepare a further evaluation of the roster for submission to the Conference of the Parties (COP) at its fifth session (FCCC/SBSTA/1997/14, para. 31 (g)).

2. Also at its seventh session, the SBSTA requested the secretariat to report annually on: (a) the application of the criteria adopted to select the experts; (b) the regional participation of experts by task, with a breakdown of participation by country; and (c) regional participation and promotion of capacity-building.

3. At its eighth session, the SBSTA noted that the roster should be continually updated based on Parties' nominations and as new needs arose and that the roster should be reviewed at regular intervals, at least every five years. It noted with appreciation the proposal of the secretariat to publish the roster on its web site. It requested that provision should be made to also accept nominations and related data electronically (FCCC/SBSTA/1998/6, para. 66).

B. Scope of the note

4. This note responds to the above mandate by providing information on the use of all the rosters of experts maintained by the secretariat. There are three such rosters related to in-depth reviews of national communications from Parties included in Annex I to the Convention, technology and technology transfer, and methodologies. The original mandates for these rosters are all different. The COP, by its decision 2/CP.1 on the review of first communications from the Parties included in Annex I to the Convention, invited Parties to contribute to the review process by nominating experts to participate in review teams and to otherwise assist the secretariat (FCCC/CP/1995/7/Add.1). By its decision 7/CP.2, the COP requested the SBSTA to evaluate a roster of experts on technology and technology transfer (FCCC/CP/1996/15/Add.1). At its fourth session, and as subsequently reconfirmed at its seventh session, the SBSTA agreed to include experts in the field of methodologies in a roster (FCCC/SBSTA/1997/14, para. 31 (b)).

5. More recently, at its tenth session, the Subsidiary Body for Implementation (SBI), having considered the conclusions of the SBSTA on the technical review process for greenhouse gas inventories of Annex I Parties, requested the secretariat to prepare draft guidelines for technical reviews and to include in the related draft work plan different approaches for individual reviews, including sending inventory material to experts, expert meetings in a single location and in-country visits of experts, or combinations of each, in order to assess these approaches. Moreover, the relevant draft decision annexed to the report of the SBI on its tenth session contains a paragraph whereby the COP would invite Parties to nominate inventory experts with

expertise in relevant sectors by 15 April 2000 (FCCC/SBI/1999/8). Information on draft guidelines for a technical review process for greenhouse gas (GHG) inventories is contained in document FCCC/SBI/1999/13.

C. Possible action by the SBSTA

6. The SBSTA may wish to consider the information in this note and provide guidance to the secretariat on the future evolution of the rosters of experts, particularly on matters related to integration, improving the completeness of information and confidentiality, the use of the methodology roster for technical reviews of greenhouse gas inventories from Annex I Parties, and a process for increasing the number of fields of expertise for possible future activities.

II. BACKGROUND

7. Information on the structure of the rosters on methodologies and on technology and technology transfer, including the complete set of fields of expertise, may be found in document FCCC/SBSTA/1998/INF.4. It also contains information on how Parties may nominate experts to these rosters, including the nomination forms. This information is also available on the secretariat's web site. A consolidated list of major fields of expertise, as synthesized from the more extensive list in document FCCC/SBSTA/1998/INF.4, is contained in the annex to the present document.

8. A listing of the areas of expertise related to in-depth reviews, but at a higher level of aggregation, is given in document FCCC/SBI/1997/CRP.7. These include: general climate change response policy, greenhouse gas inventories, projections of GHG emissions and removals, analysis of policies and measures, finance and technology transfer, and other. Information on the procedure for nominating experts, including a nomination form, for participation in in-depth reviews was also provided in that document.

9. The nominees to the methodology and technology and technology transfer rosters may be found on the secretariat's web site. The list contains the names of the nominating Party and of the nominee. Additional information is available from the secretariat upon request.[1]

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[1] Parties may wish to check this list to verify that their nominees are in the secretariat's database. Also, see paragraphs 23-24 below on the subject of confidentiality issues related to publishing the roster on the secretariat's web site.

III. EXPERIENCE IN USING THE ROSTERS

General experience

10. The secretariat was requested to report on the three items identified in paragraph 2 above. Regarding the criteria to select experts, the secretariat uses two main criteria, namely technical competence and regional balance. In applying these criteria, consideration is given to the nature of the task and its relevance to groups of Parties. For example, a workshop on Annex I guidelines had a higher level of participation from Annex I experts, while workshops on emission factors in non-Annex I Parties have had a higher participation of non-Annex I experts. However, experts from both Annex I and non-Annex I Parties are generally invited to participate in all tasks. In applying this criterion, the secretariat does not aim to achieve regional balance for each task, but rather across all tasks. Also, the nature of the task influences the technical skill needed for the activity.

11. In a few instances, a larger number of experts from a particular region was warranted. In one such case, that is a meeting of experts on coastal zone technologies, slightly more weight was given to participation by experts from countries of the Alliance of Small Island States. In organizing workshops on regional emission factors, a larger number of participants from the relevant regions have been invited. A breakdown of participants into Annex I and non-Annex I Parties is provided below for various tasks. The names of experts and countries are provided in the documents for each task, as cross referenced below.

12. The involvement of experts nominated by Parties to the rosters, in activities related to the Convention process can be a means of building the capacity of Parties not included in Annex I to the Convention. The detailed data, provided below, indicate that a total of 121 experts from Annex I Parties and 154 experts from non-Annex I Parties have participated in various activities. This level of involvement of non-Annex I Parties would appear to be making a contribution to capacity-building. The secretariat, however, has no means of measuring the extent to which capacity-building occurs.

Specific experience

13. The secretariat has used the in-depth review roster to identify experts to participate in reviews of national communications from Annex I Parties. Ninety Parties (56 non-Annex I, 22 Annex II, and 12 economies in transition) have nominated 366 experts (203 non-Annex I, 100 Annex II and 63 economies in transition) to participate in these reviews. Information on the use of the in-depth review roster may be found in document FCCC/SBI/1999/INF.12.

14. The secretariat has used the rosters on technology and technology transfer and methodologies to guide its activities related to adaptation technologies, to technically review documents in the draft stage, and to identify participants for workshops requested by the subsidiary bodies. These rosters have also been used occasionally to identify possible experts for in-depth reviews.

15. The roster of experts on methodologies contains 462 nominees from Parties, of whom 267 are from non-Annex I Parties and 195 are from Annex I Parties). The number of nominees having experience in each major field is shown in the annex to this document.

16. The roster on methodologies was used to identify participants for three workshops. For example, a workshop was held in Bonn from 9 to 11 December 1998 to consider methodological issues identified by Parties and by the secretariat while processing GHG inventories included in second national communications of Annex I Parties. In total, 79 experts attended the workshop, including six from four relevant intergovernmental organizations. Seventy-three participants were nominated by their respective governments as methodological experts to the roster. Forty-nine experts came from Annex I Parties and 24 from non-Annex I Parties. Two additional experts from non Annex I Parties were invited, but were not able to attend (FCCC/SBSTA/1999/INF.1).

17. The roster of experts on methodologies was also used to identify experts for workshops on emission factors and activity data relating to non-Annex I Parties. One workshop was organized by the UNFCCC secretariat "back to back" with a meeting of the Intergovernmental Panel on Climate Change (IPCC) on national feedback on the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories in Havana, Cuba, from 16 to 18 September 1998. A total of 76 experts participated (53 from non-Annex I Parties, 12 from Annex I Parties and the remainder from international organizations and bodies) (FCCC/CP/1998/CRP.1). Also, the roster of experts was used to identify experts for a workshop on emission factors and activity data organized by the secretariat in Accra, Ghana, from 4 to 6 August 1999. Fifty experts participated (43 from 26 non-Annex I Parties and the remainder from international organizations and bodies (FCCC/SBI/1999/INF.6). Four additional experts from non-Annex I Parties were invited, but were not able to attend.

18. In addition, the roster has been used to identify consultants to assist the secretariat with the preparation and review of draft papers. Four experts from the roster were hired as consultants. An example of one such task was the preparation and review of the common reporting format.[2]

19. The roster of experts on technology and technology transfer contains 315 nominees, of whom 130 are from non-Annex I Parties and 185 from Annex I Parties.[3] The number of nominees having experience in each major field is given in the annex below.

20. The technology and technology transfer roster was used by the secretariat to identify participants for three expert meetings relating to the terms of transfer of technology, international technology information centres and networks and coastal zone technologies. A total of 26

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[2] The common reporting format is an annex to the draft UNFCCC reporting guidelines on annual inventories for Annex I Parties (FCCC/SBSTA/1999/6/Add.1).

[3] The secretariat does not have a complete curriculum vitae for all nominees.

experts participated in these meetings (8 Annex I, 14 non-Annex I and 4 international organizations); details may be found in documents FCCC/SB/1997/4 and FCCC/TP/1999/1. In addition the secretariat has used the roster to identify three technical experts from non-Annex I Parties to contribute to a technical paper on barriers and opportunities related to the transfer of technology (FCCC/TP/1998/1) and 10 experts (5 Annex I and 5 non-Annex I) to review drafts of the same paper.

IV. OPTIONS FOR THE FUTURE

Integration of the rosters

21. Parties sometimes nominate experts for the technology and technology transfer and methodology rosters and expect the nominee to be placed also on the in-depth review roster or vice versa. While the fields of expertise are similar (see annex and paragraph 8 above), the secretariat has maintained separate rosters because the rosters were established on the basis of different decisions and for different purposes.

22. One option Parties may wish to consider is to integrate the three rosters into a unified UNFCCC roster, while maintaining the different fields of expertise as identified in document FCCC/SBSTA/1998/INF.4. A comprehensive list would have the advantage of enabling a nominee to be used for multiple assignments and would reduce the cost of maintaining multiple databases.[4] Also, if Parties agree, the methodology roster could serve the needs of the GHG inventory review process identified in the conclusions of the SBI at its tenth session (FCCC/SBI/1999/8), as the fields of expertise relating to inventories appear to be sufficiently comprehensive. This would eliminate the need to establish a separate roster for the review process.[5]

Ensuring confidentiality

23. For reasons of confidentiality, the secretariat has chosen to publish only the name of the nominee and the nominating Party on its web site. Nominees may have provided private telephone numbers and other data which they may not have expected to be published, especially on the web. Publishing complete information would, however, also allow other organizations seeking experts to contact them more easily.

24. There are several options that could be considered: (1) all the information on the application form could be made available; (2) a limited set of information, but more than just the

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[4] These rosters could be integrated taking into account the schedule for in-depth reviews of national communications from Annex I Parties.

[5] However the roster is constructed, the COP could invite Parties to nominate additional inventory experts to a roster, as described in the draft decision contained in the report of the SBI at its tenth session (FCCC/SBI/1999/8, annex I).

names, could be made available; in this case, Parties may wish to consider what information should be disclosed; and (3) all the information could be made available, but access could be restricted (see also paragraph 29 below). If options 1 or 2 are preferred, the secretariat may need to seek permission to publish the information from each nominee.

Expanding the fields of expertise

25. The original rosters were established to respond to requests from the COP and the subsidiary bodies. The comprehensive nature of the rosters has usually enabled the secretariat to identify experts needed to respond to activities identified by the subsidiary bodies. When this has not been the case, it has generally not been because the fields of expertise are not represented. Nevertheless, the current fields of expertise may not be sufficient to meet the possible future needs of the subsidiary bodies. For example, the roster contains few experts on policy instruments such as the clean development mechanism or emissions trading.

26. One option Parties may wish to consider is to review the fields of expertise identified in FCCC/SBSTA/1998/INF.4 and to suggest additional fields. This would lead to a roster with a list of experts having a broader range of experience for possible future tasks. Alternatively, Parties may wish to wait for specific tasks to be identified or to solicit such expertise in an ad hoc manner.

Improving information about nominees

27. Some nominations are not accompanied by a curriculum vitae and others contain incomplete application forms. Sometimes information on how to contact the individual (phone/fax numbers) is out of date. In the latter case, the secretariat is unable to follow the matter up and obtain proper information and it is therefore difficult to consider the applicant for particular activities.

28. The information and application forms available on the secretariat web site should make it easier for Parties to submit complete information on each new nominee. Parties, however, will need to submit nominations either electronically or by fax to the secretariat.

29. It would also be possible for outdated information and incomplete applications to be corrected directly on the web site of the secretariat by Parties having access to the Internet. The secretariat could provide an electronic password to national focal points who could directly update information on their nominees only. Parties without Internet access would need to update information by fax to the secretariat.

Annex

CONSOLIDATED LIST OF MAJOR FIELDS OF EXPERTISE AND NUMBER OF EXPERTS IN THE ROSTER FOR EACH FIELD

A. Technologies and practices to adapt to climate change

(i) General expertise

A10	Geography and planning	18
A20	Natural resources management	45
A30	Environmental economics	43

(ii) Specific area of expertise

A40	Coastal zone management	12
A50	River base management	8
A60	Forestry	18
A70	Agriculture and fisheries	17
A80	Land degradation	5
A90	Health science	4
A100	Human infrastructure	8

B. Terms of transfer of technology and know-how

B10	Economic disciplines	44
B20	Economic and impact sectors	115
B30	Economic institutions	58
B40	Economic instruments	13

C. Transfer of technologies between Annex II Parties and other Parties (mitigation)

(i) General expertise

C10	Planning and management	44

(ii) Specific area of expertise

C20	Fossil fuels	20
C30	Renewable energy technologies	23
C40	Energy transfer technologies	7
C50	Building technologies and appliances	9
C60	Transportation technologies	6
C70	Nuclear technologies	5
C80	Industrial technologies and processes	11
C90	Agriculture and forestry	4
C100	Waste treatment	6

D. Methods for greenhouse gas emission inventories

(i) General expertise

D10	Greenhouse gas emission inventories methodologies	128

(ii) Specific area of expertise

D20	Greenhouse gases	70
D30	Fuel combustion	61
D40	Fugitive emissions from fuels	14
D50	Industry	22
D60	Agriculture	30
D70	Land-use change and forestry	53
D80	Waste	25
D90	Solvent and other product use	9

E. Methods for developing projections of GHG emissions from sources and sequestration by sinks and estimating effects of measures

(i) General expertise

E10	Models and other approaches	54
E20	Programme/project evaluation methods	22
E30	Policies and measures	40

(ii) Specific area of expertise

E40	Energy-related emissions	60
E50	Non-energy-related sectors	13

F. Methods for assessing adaptation strategies and technologies

(i) General expertise

F10	Agricultural sciences	27

(ii) Specific area of expertise

F20	Agriculture and rangelands	31
F30	Other natural ecosystems	12

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RESEARCH AND SYSTEMATIC OBSERVATION

Issues related to the Global Climate Observing System

Note by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 7	2
	A. Mandate	1 - 5	2
	B. Scope of the note	6	3
	C. Possible action by the SBSTA	7	3
II.	INFORMATION RELEVANT TO THE MANDATES	8 - 21	3
	A. Developments regarding observational networks, including difficulties encountered and options for financial support	8 - 15	3
	B. Intergovernmental processes for addressing the priorities for action	16 - 19	7
	C. Options for synthesizing national plans and programmes for systematic observation of the climate system	20 - 21	8
	Annex		
	Information on research and systematic observation contained in second national communications of Annex I Parties		

I. INTRODUCTION

A. Mandate

1. The Conference of the Parties (COP), by its decision 14/CP.4, requested Parties to submit information on national plans and programmes in relation to their participation in global observing systems for climate, in the context of reporting on research and systematic observation, as an element of national communications from Parties included in Annex I to the Convention (Annex I Parties) and, as appropriate, from Parties not included in Annex I to the Convention (non-Annex I Parties) (FCCC/CP/1998/16/Add.1).

2. The COP requested the Subsidiary Body for Scientific and Technological Advice (SBSTA), in consultation with the agencies participating in the Climate Agenda, drawing *inter alia* on the information provided in the second national communications from Annex I Parties and, as appropriate, in the initial national communications from non-Annex I Parties, to inform the Conference of the Parties at its fifth session of developments regarding observational networks, difficulties encountered, *inter alia*, with respect to the needs of developing countries and options for financial support to reverse the decline in observational networks.

3. It also invited the agencies participating in the Climate Agenda, through the Global Climate Observing System (GCOS) secretariat, to initiate an intergovernmental process for addressing the priorities for action to improve global observing systems for climate in relation to the needs of the Convention and, in consultation with the Convention secretariat and other relevant organizations, for identifying immediate, medium-term and long-term options for financial support; and it requested the secretariat to report results to the Subsidiary Body for Scientific and Technological Advice at its tenth session.

4. The SBSTA, at its ninth session, invited the agencies participating in the Climate Agenda, in consultation with the Convention secretariat, to assess options for synthesizing national plans and programmes for systematic observation of the climate system, for example by drawing on the expertise of GCOS and/or using the roster of experts, and to report to the SBSTA at its eleventh session (FCCC/SBSTA/1998/9, para. 26 (c)).

5. The SBSTA, at its tenth session, invited the agencies participating in the Climate Agenda, through the GCOS secretariat, to report to the SBSTA at its eleventh session on their actions and plans, in accordance with decision 14/CP.4, including proposals to hold workshops and, in preparing to do so, to consult widely, including, *inter alia*, with the Convention secretariat, the Chairman of the Intergovernmental Panel on Climate Change (IPCC) and the Global Environment Facility (GEF). The SBSTA also recalled paragraphs 1 (e) and 5 of decision 2/CP.4 requesting the GEF to report to the COP on its activities with regard to providing funding to developing countries to build capacity for participation in systematic observational networks (FCCC/SBSTA/1999/6, para. 75 (c) and (e)).

B. Scope of the note

6. This note provides preliminary information in response to the above mandates. It contains information on observational networks as provided by Annex I Parties in their second national communications, including, in some cases, information on support for capacity-building in developing countries. Information on the status of observational networks as provided by Parties not included in Annex I to the Convention is provided in document FCCC/SBI/1999/11. The GCOS secretariat also provided information, particularly with respect to the operation of surface and upper air networks and ocean observation networks in different regions. The information represents an initial step in understanding the current status of support for observational networks and is suggestive of broad areas needing improvements. Given the preliminary nature of the information, specific options for funding are not included in the note.

C. Possible action by the SBSTA

7. The SBSTA may wish to consider the information in this note and the need for any further activities. For example, it may wish to consider a process, in cooperation with the GCOS, for identifying the specific needs and resource requirements of developing countries, perhaps through a series of regional implementation meetings. It may also wish to provide additional guidance to the secretariat on this issue.

II. INFORMATION RELEVANT TO THE MANDATES

A. Developments regarding observational networks, including difficulties encountered and options for financial support

Information from national communications

8. Twenty-five Parties included in Annex I to the Convention have reported on research and systematic observation within their second national communications[1] (see the annex[2] to this document). The scope, coverage and level of detail vary considerably, making comparisons difficult. Of these, 23 Parties have reported at varying levels of coverage on data monitoring, collection and archives. Some of these national programmes feed directly into the international

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[1] The Parties that have provided information include: Australia, Austria, Canada, the Czech Republic, Denmark, the European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Latvia, the Netherlands, New Zealand, Norway, Portugal, Romania, the Russian Federation, Sweden, Switzerland, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

[2] The annex represents a synthesis of information contained in the second national communications of Annex I Parties, but does not provide an exhaustive description. It contains some mention of developments in the observational networks over time and is a status report on the institutions responsible for coordination, number of various types of stations, and other aspects. There is little information on the limitation of these networks, such as lack of complete coverage, or partial automation.

programmes discussed later. Regarding the international research activities, Parties indicated involvement in the International Geosphere-Biosphere Programme (IGBP), the World Climate Research Programme (WCRP) and the International Human Dimensions of Global Environmental Change Programme (IHDP). Parties also mentioned their involvement in other relevant international programmes including the World Weather Watch (WWW), the Global Atmosphere Watch (GAW), the Global Climate Observing System (GCOS), the Global Terrestrial Observing System (GTOS) and the Global Ocean Observing System (GOOS).

9. Activities aimed at promoting regional cooperation in systematic observations were reported by a large number of Parties.[3] Two Parties reported on capacity-building activities directly within their region,[4] whereas others reported participation in regional groupings or regional projects such as the Association of South East Asian Nations (ASEAN), the Pacific Meteorological Services Project, and the South Pacific Regional Environment Programme (SPREP). One Party reported assistance to developing countries via participation in the Valdivia Climate Change Working Group. In addition, other capacity-building assistance to developing countries was identified by some Parties.[5] The assistance included projects for systems of atmospheric soundings, support of meteorological departments and assistance to national meteorological and hydrological services (NMHSs) and national meteorological services (NMSs). The development of the Pacific Climate Assistance Programme (PCAP), approved for funding by the Global Environment Facility, was one such activity.

10. Eight Parties not included in Annex I to the Convention have provided information on observational networks in their first national communications (FCCC/SBI/1999/11).[6] Parties have reported on national meteorological, climate and hydrological networks and monitoring of greenhouse gases and sinks. Three tables are provided in the document referenced above with information on: (a) the types and number of observation stations, national databanks, archiving activities and equipment and institutional arrangements; (b) examples of regional and international cooperation; and (c) activities requiring financial and technical assistance.

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[3] The Parties that have reported information related to regional cooperation include: Australia, Austria, Bulgaria, Canada, Denmark, European Economic Community, Germany, Greece, Italy, Japan, the Netherlands, New Zealand, Portugal, Sweden and the United States of America.

[4] Australia and New Zealand.

[5] Parties reporting information on capacity-building include: Australia, Finland, New Zealand, Norway and the United States of America. It should be noted that reporting on capacity-building activities was not an explicit requirement of the guidelines for reporting on second national communications of Parties included in Annex I to the Convention.

[6] The Parties that have reported information include: Argentina, Armenia, Kazakhstan, the Republic of Korea, Mauritius, Mexico, Uruguay and Zimbabwe.

Information from the World Meteorological Organization and the GCOS secretariat

11. Another source of information regarding the status of observational networks is the monitoring data collected under the World Weather Watch (WWW) of the WMO for surface observations, by the European Centre for Medium-range Weather Forecasts (ECMWF) for upper-air observations and by Météo France for ocean observations. These data sets provide some indication of the performance of critical parts of the meteorological and oceanographic networks.[7] The data provided in tables 1 and 2, representative of recent performance, lend substance to the reports of degradation of observing systems, especially in developing countries. The data represent one piece of information needed to set funding priorities. Additional information from these centres may be available at the eleventh session of the SBSTA.

12. Table 1 provides preliminary information on the status of the GCOS Surface Network (GSN) and GCOS Upper Air Network (GUAN). It shows, by WMO region and globally: in the first column the percentage of "good" stations (i.e. those providing at least 90 per cent of required observations); in the second column, the percentage of "unsatisfactory" stations (i.e. those providing some observations but less than 50 per cent of requirement); and, in the third column, the percentage of "silent" stations (i.e. those providing no data). The table indicates that the worst situation regarding the implementation of the GSN exists in South America and Africa where only 20 and 30 per cent of GSN stations, respectively, provide 90 per cent or more of required observations. About 15 per cent of GSN stations in each of these regions and in the South-West Pacific are considered as "silent".

13. The worst implementation of the GUAN is in South America, where only 40 per cent of stations provide sufficient observations, while about a quarter are completely "silent" or have low implementation (i.e. establishment and continuing operation) levels. The situation is only a little better in Africa, Asia and the South-West Pacific. The reasons for low or non-availability of observational data from these areas include obsolete equipment, lack of qualified staff, and lack of consumables and spare parts due to economic constraints experienced by developing countries in these regions.

Table 1. Preliminary information on the status of meteorological networks, by WMO region

WMO region	Percentage of stations providing at least 90 per cent of observations	Percentage of stations providing less than 50 per cent of observations	Percentage of "silent" stations
	GSN (WWW monitoring, 1-15 October 1998)		
I - Africa	30	18	16
II - Asia	70	7	5
III - South America	20	18	13
IV - North & Central America	77	2	8

[7] Centres have been established by Germany (Deutscher Wetterdienst) and Japan (Meteorological Agency) to monitor the performance of the GSN; by the European Centre for Medium-range Weather Forecasts to monitor the performance of the GUAN; and by the USA (National Climatic Data Centre) to archive the data from these networks.

V - South-West Pacific	75	1	14
VI - Europe	86	0	3
Antarctica	80	5	0
Global	63	7	8
GUAN (ECMWF monitoring, March-April 1999)			
I - Africa	65	9	0
II - Asia	65	8	4
III - South America	40	12	12
IV - North & Central America	75	0	5
V - South- West Pacific	62	3	5
VI - Europe	93	0	0
Antarctica	67	8	0
Global	69	6	4

14. The situation with regard to basic atmospheric/ocean surface variables, by major ocean basin, is indicated in table 2. The data represent the range of daily average percentages of the World Weather Watch (WWW) requirements met for each variable for a recent period; for these data, GCOS requirements are not likely to be much different. Since most of the observations are derived from voluntary observing ships (VOS) and drifting or moored buoys, there is considerable variation even within each ocean basin, and the table reflects this. From an analysis of these and similar results, it is clear that the availability of data from the oceans is far from satisfactory at the present time, though it is relatively stable.[8]

Table 2. **Preliminary information on the status of oceanographic data collected, by ocean basin**

Ocean basin	Surface air pressure (per cent WWW requirements)	Sea surface temperature (per cent WWW requirements)	Surface air temperature (per cent WWW requirements)	Surface wind (per cent WWW requirements)
North Atlantic	50 – 200	50 – 150	20 – 90	20 – 100
South Atlantic	25 – 90	20 – 70	0 – 40	0 – 50
North Pacific	5 – 80	40 – 100	5 – 40	5 – 60
South Pacific	10 (except in limited areas)	20 – 70	0 – 30	0 – 35
Global	5 – 60	10 – 50	0 – 40	0 – 20
Southern	10	0 – 70	0	0 – 50

15. The experience of the agencies participating in the GCOS suggests that non-Annex I Parties have three needs: training and development of their human resources, observing equipment that is consistent with their level of infrastructure, and ongoing funding for supplies and maintenance. The first two of these requirements may be tractable using existing mechanisms such as the Global Environment Facility (GEF) and bilateral aid programmes, but long-term, ongoing operational funding is not ensured by any of the existing financial mechanisms. Funding

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[8] The Ocean Observations Panel for Climate is organizing jointly with the Ocean Object Panel of CLIVAR, OCEANOBS'99, a major international Conference on the Ocean Observing System for Climate in October 1999, with the purpose of defining the optimum mix of measurements needed to meet the goals of climate programmes. It will be hosted by the Government of France with the support of over 20 sponsors. The outcome should be available in time for the eleventh session of the SBSTA.

for such activities has been within the domain of national governments. Given the data presented above on the status of the networks, meeting these needs is clearly still a major problem for the global networks.

B. Intergovernmental processes for addressing the priorities for action

16. The invitation of the COP to consider an intergovernmental process was explored with the relevant agencies at the third session of the Inter-Agency Committee on the Climate Agenda (IACCA) earlier this year. It was determined that existing coordination mechanisms do not focus on all aspects of the climate agenda, while a one-time intergovernmental meeting on systematic observations would only be of limited benefit. Due to the breadth of the climate agenda, no current intergovernmental organization or mechanism encompasses all aspects of a global observing system for climate. Various proposals are being discussed on an appropriate mechanism to establish the priorities for implementing a global observing system for climate and its international coordination. As was noted in the GCOS report to SBSTA 10, they range from a one-time intergovernmental meeting on systematic observations to an intergovernmental board. The former could have only limited impact while the latter requires extensive planning, coordination and development before it could be accepted internationally. Due to the wide range of views on this matter, the GCOS secretariat is working with representatives from a number of interested nations and other organizations to better document a possible process. The next step being considered is a meeting of these representatives in late September 1999 so that a report on a possible process could be presented to the Conference of the Parties at its fifth session.

17. Although meeting the needs of the UNFCCC for systematic observations requires global networks, the experience of the relevant agencies suggests that regional or other sub-global approaches will also be needed to make significant progress towards implementation. Given adequate funding, the GCOS secretariat proposes to hold a series of regional implementation meetings that would identify the specific needs of the Parties or groups of Parties in a given region to address network deficiencies. These needs could be assembled into specific projects and taken to funding agencies such as the GEF. In addition, the meetings would be used to inform Parties about the process of national planning for systematic observations for climate and the requirements for specific regional observations. Building on the experience of the few Parties that have commenced preparation of national climate plans, the meetings would explore the guidance prepared for systematic observations and assist the development of national communications by participating Parties.

18. The Thirteenth World Meteorological Congress (May 1999) noted that the GCOS had now reached "a critical point in its existence due to the serious lack of resources for its implementation. This critical situation had been exacerbated by the need for GCOS to respond to the many urgent requests emanating from ... the Fourth Session of the ... COP ... and the large additional load this had placed on the GCOS secretariat. Congress agreed that the COP Subsidiary Body for Scientific and Technological Advice (SBSTA) should be informed that significant new funds are required both for the Secretariat to discharge this load and for Members to be able to implement the atmospheric and hydrological components of the GCOS plan, and that

a similar situation existed within the oceanographic and terrestrial domains."

19. It is anticipated that further developments relating to intergovernmental processes will be reported by the GCOS secretariat to the eleventh session of the SBSTA.

C. Options for synthesizing national plans and programmes for systematic observation of the climate system

20. Parties that have provided information on observational systems do so using many different formats. The information is generally very diverse, but limited in scope (see the annex to this document). The communications do not include national plans, but sometimes provide summaries of national programmes. Improved guidance for reporting on plans and programmes is needed to encourage Parties included in Annex I to the Convention to provide more uniform and comprehensive information in their national communications. This would subsequently enable more comprehensive syntheses to be undertaken.

21. The GCOS secretariat has provided such draft reporting guidance. It may be found in document FCCC/SBSTA/1999/13/Add.2. If this guidance or a subsequent version is accepted by the Parties, and if Parties use it as a basis for reporting third national communications, it will be possible to develop options for synthesizing information on national plans and programmes in the future. Moreover, if similar reporting guidance were also to be accepted by Parties not included in Annex I to the Convention, it might provide a better basis for ascertaining the technical and financial needs of those Parties.

Annex

Information on research and systematic observation contained in second national communications of Annex I Parties

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Australia	-Hosts the International Geosphere-Biosphere Programme (IGBP) Global Change and Terrestrial Ecosystems (GCTE) core project office. -Participates in the Regional Interactions of Climate and Ecosystems (RICE) project of the Global Analysis, Interpretation and Modelling (GAIM) programme of IGBP.	-Participates in the World Climate Research Programme (WCRP), including the Arctic Climate System Study (ACSYS) on the impact of climate change on the mass balance of the sub-Antarctic ice sheet and implications for global sea level rise, the Climate Variability and Predictability (CLIVAR), the Stratospheric Processes and their Role in Climate (SPARC), the Global Energy and Water Cycle Experiment (GEWEX) and the World Ocean Circulation Experiment (WOCE) projects. -Participates in the first phase of the Aerosol Characterization experiment comparing aspects of atmospheric aerosols in the northern and southern hemispheres as part of the International Global Atmospheric Chemistry (IGAC) project. -Participates in the study the role of oceans in the global climate system within the Tropical Oceans Global Atmosphere Experiment (TOGA) and the Joint Global Ocean Flux Study (JGOFS).	-Supports regional initiatives like the South-Pacific Sea Level and Climate Monitoring Project, the Association of South East Asian Nations (ASEAN-Australia Maritime Science (Tides) Project) and the Pacific Meteorological Services Project. -Provides technical advice and assistance to neighbouring countries to help improve data management and climate monitoring capabilities of their national meteorological services. -Australian climate models have been made available to Argentina, Indonesia, Japan, New Zealand, South Africa (includes capacity-building). -Provides support for analysis, observation and modelling projects in the Asia-Pacific region as part of the Global Change System for Analysis, Research and Training (START).	Collection and archiving of meteorological data is done primarily by the Bureau of Meteorology. This database was recently upgraded into a modern on-line database system. Data are being collected at 6,200 active rainfall stations, 870 surface observation stations and 60 upper air stations. Surface observation networks are also operated by state and territory agencies and the CSIRO. Stratospheric ozone is monitored regularly at six stations. Trace gas measurements are also carried out. Sea level is monitored. 16 tide gauges are maintained.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Austria	-Participates in the Mesoscale Alpine Programme (MAP). -Participates in the International Geosphere-Biosphere Programme. -Participates in the EUROTRAC sub-project ALPTRAC.	-Participates in the international data exchange as part of World Weather Watch (WWW) of WMO. -Participates in the Global Atmosphere Watch (GAW).		It undertakes climate monitoring in the Alps. Also provides locations for monitoring where there is little influence by human activities. Stratospheric ozone monitoring and UV measurements also being conducted.
Bulgaria	-Participates in the European Monitoring of Environment Programme (EMEP).	No information provided regarding participation in international programmes.		The National Institute of Meteorology and Hydrology conducts research on climate oscillation and climate elements over Bulgaria. The Institute of Oceanology is involved in projects related to the observation of the climate characteristics of the Black Sea.
Canada	-Participates jointly with the United States in the Boreal Ecosystem Atmosphere Study (BOREAS).	-Participates in the World Ocean Circulation Experiment (WOCE) and the Joint Global Ocean Flux Study (JGOFS). -Contributes to the Global Energy and Water Cycle Experiment (GEWEX). -Participates in the Global Climate Observing System (GCOS).		A national network of climate observing systems and a comprehensive climate data management system is operational. Concern expressed regarding the potential for deterioration of quality, quantity and accessibility of data due to ongoing rationalization of monitoring activities. The Canadian National Committee for the Global Climate Observing Systems coordinates systematic observations and data collection activities within and adjacent to Canada.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Canada (continued)				There is an Acid Rain National Early Warning System and an Ecological Monitoring and Assessment Network. Country monitors greenhouse gas (GHG) concentrations and air chemistry at three long-term stations along the coastlines. National effort is under way to reconstruct the last 20,000 years of country's climate at 1000 year intervals.
Czech Republic		-Participates in the International Geosphere-Biosphere Programme (IGBP), including the Global Change and Terrestrial Ecosystems (GCTE), the Biospheric Aspects of the Hydrological Cycle (BAHC) and Past Global Changes (PAGES). -Participates in the WMO World Climate Programme.		Standard data measured through a network of synoptic and airport stations of the Czech Meteorological Institute. Limited data are provided by the Air Force and the two stations of the Institute of Atmospheric Physics. Specialized observatories include the GEMS Kosetice observatory, the Solar and Ozone Observatory in Hradec and the Prague-Libus observatory (sounding, radar, satellite meteorology). The professional and voluntary stations include 18 synoptic stations, 11 aviation stations, 165 climatological stations, 684 precipitation stations and 10 other professional stations.
Denmark	-Collaborates in the European Climate Support Network (ECSN).	-Participates in the WMO coordinated programmes, the World Weather Watch and the World Climate Data Programme. -Participates in the World Climate Research Programme (WCRP).		Data are contained in the Danish Meteorological Institute (DMI) climate data base. Observations date back to 1872 and sea level observations date back to 1890.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Denmark (continued)	-Collaborates with the north-west European meteorological institutes for the North Atlantic Climatological Data Set.			Measurements are also made of solar radiation, sea level at 14 stations, and ozone soundings and ground based spectroscopy in Greenland. DMI coordinated the collection of monthly climatic data, as part of the North Atlantic Climatological Data Set (NACD) involving nine north-west European meteorological institutes. Ozone measurements are also done.
European Economic Community	-Coordinates the Fourth Framework Programme for Research and Development sub-programme on (i) Environment and Climate: research into natural environment, environmental quality and global change (Includes EPICA: European Project on Ice Coring in Antartica). -EURO-CLIVAR feeds into international CLIVAR.	-Supports Large Scale Biosphere-Atmosphere (LBA) experiment in the Amazon. -Participates in the WCRP Climate Variability and Predictability (CLIVAR) programme.		
Finland		-Participates in the Global Atmosphere Watch (GAW) of the WMO.	-Finnish Meteorological Institute is involved in development cooperation in meteorology with African countries and the (see over)	Observations currently made at 3 meteorological observatory stations, 46 synoptic stations, 87 climatological stations and 57 automatic stations.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Finland (continued)			Central American isthmus. International development cooperation projects in meteorology include projects for systems for atmospheric soundings (Nicaragua, Costa Rica, Ecuador, Chile, Bangladesh, Myanmar) rehabilitation and improvement of Sudan meteorological department, the NMHSs in Central America and the NMSs in southern Africa.	Finnish climate observations are part of the NACD data set.
France		-Participates in the World Climate Research Programme (WCRP) including the World Ocean Circulation Experiment (WOCE). -Participates in the International Geosphere-Biosphere Programme (IGBP). -Participates in TOGA.		Five national science programmes which include the National Programme for the Study of Climate Dynamics, the Ocean Flux Study, the National Atmospheric Chemistry Programme, the National Coastal Oceanographic Programme and the National Programme "Déterminisme du Recrutement". Additionally there are the National Atmosphere and Ocean Medium Scale Programme, the National Space Remote Sensing Programme and the National Continental Biosphere Programme.
Germany	-Collaborates in the EU projects POLINAT and AERONOX.	-Participates in the WCRP programmes including CLIVAR, GEWEX (Baltic Sea Experiment - BALTEX), WOCE, and ACSYS. -Participates in the IGBP programmes including IGAC, PAGES, GAIM.		The German Weather Service maintains the national climatological archives, including data from more than 550 commercial ships and supports standardization of observation instruments. Measurements also being made by

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Germany (continued)		-Participates in the GOOS network, the Integrated Global Oceanographic Services System (IGOSS), the GCOS Upper Air Network, WWW and GAW.		the Weather Service of radiation, ozone, atmospheric structure, precipitation and clouds. Oceanographic monitoring is being done within the Integrated Global Oceanographic Services System (IGOSS) and the International Oceanographic Data and Information Exchange (IODE) programmes. The German Federal Institute for Navigation and Hydrography maintains a network of oceanographic measurement stations in the German Bight and the Western Baltic. The Marine Environment Remote-Controlled Measuring and Integrated Detection (MERMAID) system is being integrated into this network. Monitoring of CO_2 concentrations at five background measuring stations since 1972. CH_4, N_2O, VOC also monitored.
Greece	-Participates in the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) and the European Centre for Medium Range Weather Forecasting (ECMWF).	-Participates in the World Weather Watch, the WCRP including the World Climate Programme, the GCOS and the IGBP.		

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Ireland		-Participates in the IGBP.		14 synoptic observing stations operational under the Irish Meteorological Service. Programme to install automatic weather stations to ensure full daily coverage is under way. 80 climatological stations make measurements of rainfall, temperature, and occasionally sunshine, soil and earth temperatures, and weather phenomena. These data are supplied by the organizations and individuals operating these stations to the Irish Meteorological Service where they are checked for quality and then archived. Ozone measurements are also being made at one observatory and UV radiation is being measured at three locations.
Iceland		-Participates in the IGBP (GCTE and the Biospheric Aspects of the Hydrological Cycle), the IHDP and the WCRP. -Contributes to the International Tundra Experiment (ITEX) network.		The Icelandic Meteorological Office collects information from 130 locations. Extensive measurements of ozone and other measurements of greenhouse gases have been conducted.
Italy	-Participates within the EU framework. No details available.	-Participates in the World Data Centre for Greenhouse Gases, of the WMO.		Two stations at Monte Cimone and Lampedusa monitor CO_2, CH_4, N_2O and chlorofluorocarbons (CFCs). Daily ozone monitoring also occurs.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Japan	-Cooperates within the Asia-Pacific Network for Global Change Research (APN).	-Participates in the WCRP, the IHDP and the IGBP. -Participates in the GEWEX Asian Monsoon Experiment (GAME), the IOC Sub-commission for the Western Pacific (WESTPAC). -Participates in the Global Environmental Monitoring System (GEMS), the Global Atmosphere Watch (GAW), the GCOS, the GOOS, and the Integrated Global Ocean Services System (IGOSS) and the Committee on Earth Observation Satellites (CEOS).		Additional to the measurements of air temperature, water temperature, atmospheric pressure, precipitation, direct solar radiation, national efforts to measure temporal and spatial distribution of CO_2, CH_4, CFCs, N_2O, tropospheric ozone, and other GHGs are being reinforced. Use of satellite sensors is also being actively promoted.
Latvia		-Participates in the WCRP (World Climate Data and Monitoring Programme), the Hydrology and Water Resources Programme and the Global Atmosphere Watch (GAW).		Climate measurements are carried out by the Latvian Hydrometeorological Agency. Ozone measurements are being conducted at the Rucava station.
Lithuania		-First national communication indicates it participates in the UNESCO Man and the Biosphere Programme.		

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Netherlands	-Participates in the earth observation programmes of the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) and the European Space Agency (ESA).	-Participates in the WCRP, the IGBP and the International Human Dimensions of Global Environmental Change Programme (IHDP). -Participates in the Global Climate Observing System (GCOS), Global Terrestrial Observing System (GTOS) and the Global Ocean Observing System (GOOS).		The Royal Netherlands Meteorological Institute (KNMI) stores and manages the climate data collected at various monitoring stations. At present there are 400 observation stations and around 370 weather variables are collected. A database on climate includes what is collected via the observation stations. Meteorological observations date back to 1850-1900 depending on the variable.
New Zealand	-Collaborates with the CSIRO Division of Atmospheric Research Australia. -Collaborates within the Southern Alps Experiment (SALPEX).	-Participates in the International Geosphere-Biosphere Programme (IGBP). -Participates in the World Climate Research Programme (WCRP), including CLIVAR project. -Participates in the GEWEX Cloud System Study (GCSS). -Participates in the first aerosol characterization experiment(ACE-1) of the International Global Atmospheric Chemistry Project, investigating the relationship between cloud condensation nuclei and dimethyl sulphide in the South Tasman Sea.	-Collaborates with appropriate individuals of the Pacific island countries through the South Pacific Regional Environment Programme (SPREP). -Country scientists assisted in development of the Pacific Climate Change Assistance Programme (PCAP), approved for funding by the GEF. -Cooperates with Bangladesh experts working on sea level rise. -Develops plans for collaborative research and capacity-building within several southern hemisphere developing countries through the Valdivia Climate Change Working Group (Argentina, Australia, Chile, New Zealand, South Africa, Uruguay).	Climate and weather observation from New Zealand and the South Pacific islands are achieved by the National Institute of Water and Atmospheric Research (NIWA) in a database. The archive includes data from 21-station New Zealand reference climate network. Sea surface temperatures are also monitored by NIWA, using *in-situ* temperature recorders and satellites. NIWA also measures concentrations of CO_2, CH_4, and CO, apart from stratospheric ozone and UV radiation. The Navy Hydrographic Office holds 90-year tide gauge records from various locations. NIWA also operates approximately 300 river flow and lake level measuring sites.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Norway		-Participates in the International Tundra Experiment (ITEX). -Participates in the IGBP, and the Biospheric Aspects of the Hydrological Cycle (BAHC). -Hosts the international core project office of the Joint Global Ocean Flux Studies (JGOFS) and the International Arctic Climate System Study office (ACSYS). -Participates in the International Global Atmospheric Chemistry Project (IGAC), and the Global Change and Terrestrial Ecosystems (GCTE) research.	-Funds made available for Norwegian scientists involved in collaboration with developing countries.	The Norwegian Institute of Air Research (NILU) is responsible for GHG observations. Tropospheric and stratospheric ozone and CO_2, CH_4, N_2O, and CFCs are measured at the Arctic atmospheric baseline station. Also contributes to the NACD data set. A pre-1990 meteorological database has also been developed in Stavanger. Temperature and salinity records are maintained on the weather ship Polarfront.
Portugal	-Participates in the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) and the European Centre for Medium Range Weather Forecasting (ECMWF).	-Participates in the WMO, the WWW, the WCRP and the GCOS.		The Institute of Meteorology is responsible for the maintenance of 30 synoptic stations, 70 climatological stations, 700 udometric units and 3 aerological stations. Future purchase and installation of automatic weather stations is likely.
Russian Federation		-Participates in the Global Energy and Water Cycle Experiment (GEWEX), the Tropical Ocean and Global Atmosphere Programme (TOGA), the World Ocean Circulation Experiment (WOCE), the Climate Variability		Roshydromet is responsible for climate change monitoring. Data on air temperature, precipitation and atmospheric circulation, cloud cover and sea surface temperature are collected. Since 1985, a bulletin on climate monitoring has been issued.

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Russian Federation (continued)		and Predictability experiment (CLIVAR) and the Arctic Climate System Study (ACSYS).		
Spain	-Participates in the EU Fourth Framework Programme for Research and Development.	-Participates in the IGBP, the IHDP and the WCP.		The National Institute of Meteorology is responsible for atmospheric observations. There are both manned and automatic observing stations measuring various surface and upper air measurements. Terrestrial and oceanic measurements are also being made.
Sweden	-Participates in the EU project SINDICATE (Study of the Indirect and Direct Influences on Climate of Anthropogenic Trace Gas Emissions). -Participates in the Nordic Climate Modelling Project (NOCLIMP) studying the sensitivity of large GCMs to moisture-cloud-radiation processes.	-Participates in the Joint Global Ocean Flux Study (JGOFS). -Participates in the IGBP, the GCTE on ecosystem physiology for boreal forests and in PAGES on climatic changes in the past 20,000 years. -Participates in the WCRP within the Global Energy and Water Cycle Experiment (GEWEX) in particular on BALTEX, the Baltic Sea Experiment; the Climate Predictability and Variability (CLIVAR) and the World Ocean Circulation Experiment (WOCE).		

Annex I Party	Regional cooperation	International cooperation	Capacity-building	Data monitoring, collection and archives
Switzerland		- Hosts the core project office of the International Geosphere-Biosphere Programme, Past Global Changes project. - Contributes to the WCRP, the IHDP, the GCTE, and DIVERSITAS Programme.		Monitoring activities are supported by Federal and Cantonal administrations and research institutions. The observational network are considered to be well developed and include measurements of the variables including atmospheric concentrations of trace gases, aerosols, particulates, direct, diffuse, terrestrial and global irradiance, UV radiation and snow cover conditions.
United Kingdom of Great Britain and Northern Ireland		- Participates in the WCRP and the IGBP. - Participates in the global observing systems GCOS, GOOS and GTOS.		Climate monitoring is undertaken by the Meteorological Office. Global average surface temperatures are published annually and also a historic sea-surface temperature data set has been published. Sea level is monitored. The concentrations of greenhouse gases are also monitored. Changes to flora, fauna, soil, water, and air composition are monitored by the Environmental Change Network.

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DEVELOPMENT AND TRANSFER OF TECHNOLOGIES

STATUS OF THE CONSULTATIVE PROCESS (DECISION 4/CP.4)

COASTAL ADAPTATION TECHNOLOGIES

OTHER MATTERS

Progress report

Note by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 5	3
	A. Mandate	1 - 2	3
	B. Scope of the note	3 - 4	3
	C. Possible action by the SBSTA	5	4
II.	CONSULTATIVE PROCESS REFERRED TO IN DECISION 4/CP.4	6 - 12	4
	A. Specific mandate	6 - 7	4
	B. Discussion	8 - 12	5

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		Paragraphs	Page
III.	ADAPTATION TECHNOLOGIES	13 - 15	6
	A. Specific mandate	13 - 14	6
	B. Discussion	15	6
IV.	COOPERATION WITH OECD/DAC	16 - 19	6
	A. Specific mandate	16	6
	B. Discussion	17 - 19	6

Annexes

I.	African Regional Workshop on Transfer of Technology Consultative Process, Arusha, Tanzania 16-18 August 1999	8
II.	CTI/ Industry Joint Seminar on Technology Diffusion in Eastern Europe, Bratislava, Slovakia, 14-17 July 1999	20

I. INTRODUCTION

A. Mandate

1. The Conference of the Parties (COP), at its first, second, third and fourth sessions requested the secretariat to undertake a number of tasks regarding the development and transfer of technology. These tasks are contained in decisions 13.CP.1,[1] 7/CP.2, 9/CP.3, and 4/CP.4 respectively.[2] The Subsidiary Body for Scientific and Technological Advice (SBSTA) has also requested the secretariat to undertake several tasks on the subject. The most recent conclusions may be found in the reports of the ninth and tenth sessions of the SBSTA (FCCC/SBSTA/1998/9 and FCCC/SBSTA/1999/6, respectively).

2. By its decision 4/CP.4, the COP requested the secretariat to continue its work on the synthesis and dissemination of information on environmentally-sound technologies and know-how conducive to mitigating, and adapting to, climate change. By the same decision, the COP also requested the Chairman of the SBSTA to establish a consultative process and to make recommendations on how to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention (decision 4/CP.4). Furthermore, the SBSTA, at its tenth session, requested the secretariat to complete its ongoing activities for 1999 as defined in the progress report prepared by the secretariat in document FCCC/SBSTA/1999/2 (FCCC/SBSTA/1999/6).

B. Scope of the note

3. This note provides information on the ongoing activities of the secretariat in 1999 related to the technology and transfer of technology and particularly on the progress of the consultative process on the transfer of technology.

4. Additional information relevant to the issues discussed in this note can be found in a technical paper on coastal adaptation technologies (FCCC/TP/1999/1) and submissions from Parties on options to accelerate and sustain the development and transfer of coastal adaptation technologies (FCCC/SBSTA/1999/MISC.11). Parties may also wish to consider the previous progress reports on the development and transfer of technologies (FCCC/SBSTA/1999/2, FCCC/SBSTA/1998/5 and FCCC/CP/1998/6).

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[1] At its first session, by its decision 13/CP.1, the COP decided, *inter alia*, "to review, at the second session of the Conference of the Parties, and at each session of the Conference of the Parties thereafter, the implementation of Article 4.5 and 4.1(c) of the Convention as a separate agenda item" (FCCC/CP/1995/7/Add.1).

[2] For the full texts of decisions adopted by the Conference of the Parties at its first, second, third and fourth sessions, see documents FCCC/CP/1995/7/Add.1, FCCC/CP/1996/15/Add.1, FCCC/CP/1997/7/Add.1 and FCCC/CP/1998/16/Add.1, respectively.

C. Possible action by the SBSTA

5. The SBSTA may wish to consider the information in this progress report, and where necessary:

(a) Provide further guidance to the Chairman of the SBSTA concerning the consultative process referred to in decision 4/CP.4, and as appropriate, recommend a decision, for adoption by the Conference of the Parties at its fifth session;

(b) Provide guidance to the secretariat with regard to its work on adaptation technologies, particularly coastal zone technologies (see FCCC/TP/1999/1 and the submissions from Parties contained in FCCC/SBSTA/1999/MISC.11); and

(c) Urge those Annex II Parties that have not provided support for the consultative process to do so if possible.

II. CONSULTATIVE PROCESS REFERRED TO IN DECISION 4/CP.4

A. Specific mandate

6. By its decision 4/CP.4, the Conference of the Parties requested the Chairman of the SBSTA to establish a consultative process to consider the list of issues and questions contained in the annex to that decision, as well as any additional issues and questions subsequently identified by Parties, and to make recommendations on how they should be addressed in order to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention. It also requested the Chairman of the SBSTA to report on the outcome of the consultative process to the SBSTA at its eleventh session, with a view to recommending a decision for adoption by the Conference of the Parties at its fifth session.

7. At its tenth session, the SBSTA noted the progress made by the Chairman, with the assistance of the secretariat, in conducting the consultative process on the transfer of technology. It endorsed the proposal by the Chairman that the secretariat organize three regional workshops, one in Africa, one in Asia and the Pacific Islands, and one in Latin America and the Caribbean. It also recognized that, given the time and resources available, it would not be possible to complete all regional workshops before the fifth session of the COP. It invited the Chairman, with the assistance of the secretariat, to complete the regional workshops by early 2000, and to report to the SBSTA at its twelfth session, with a view to taking a decision by COP 6 (FCCC/SBSTA/1999/6, para. 69 (c) and (d)).

B. Discussion

8. The Chairman of the SBSTA held initial consultations on issues relating to the transfer of technology in the African context at a regional workshop on the transfer of technology consultative process, held from 16 to18 August 1999 in Arusha, Tanzania. The workshop was organized by the secretariat, with the assistance of the Government of Tanzania and the Centre for Energy, Environment, Science and Technology.

9. The agenda of the workshop was designed to address the issues and questions contained in the annex to decision 4/CP.4. The workshop was attended by 74 participants, 44 from non-Annex I Parties, representing 20 African and 2 Asian Parties. Representatives from 11 Annex I Parties also participated in the workshop. Six inter-governmental organizations were represented (United Nations Environment Programme, United Nations Development Programme, United Nations Industrial Development Organization, Global Environment Facility, Intergovernmental Panel on Climate Change, and Climate Technology Initiative), and two non-governmental organizations (International Chamber of Commerce and Climate Action Network). The report of the workshop is included in annex I to this document.

10. The workshop brought together a group of representatives of African governments, as well as recognized regional experts with a diverse range of experiences in the design and implementation of technology-based projects and programmes supported by bilateral and multilateral initiatives and the private sector.

11. The workshop was made possible through the receipt of financial assistance and/or in-kind support from the Governments of the United States of America and Germany. An additional financial contribution has been received from the Government of Australia to partly facilitate the organization of the workshop in Asia and the Pacific Islands. France and Austria have pledged to provide in-kind support and a financial contribution, respectively, to facilitate part of the organization of future workshops. Several other countries are also considering official offers of support for these two future workshops. Contributions received from Parties thus far have allowed the secretariat to organize one workshop in Africa and will partially fund the organization of one additional workshop. Thus it is important that other Annex II Parties, in a position to do so, provide further financial and/or in-kind support to facilitate the organization of the remaining two workshops.

12. The Climate Technology Initiative, in cooperation with the secretariat, organized a Regional Seminar on Technology Diffusion in Eastern Europe, on 15-17 July 1999, in Bratislava, Slovakia. A report by the secretariat on this seminar is contained in annex II to this document.

III. ADAPTATION TECHNOLOGIES

A. Specific mandate

13. At its second and third session, by its decisions 7/CP.2 and 9/CP.3 respectively, the Conference of the Parties requested the secretariat to prepare reports on adaptation technologies and to continue its work on the synthesis and dissemination of information on environmentally-sound technologies and know-how conducive to mitigating, and adapting to, climate change. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its eighth session, encouraged the secretariat to continue its work on adaptation technologies (FCCC/SBSTA/1998/6, para. 58 (h)).

14. The secretariat prepared a technical paper on coastal adaptation technologies for consideration by the SBSTA at its tenth session (FCCC/TP/1999/1). At that session, the SBSTA invited Parties to submit, by 16 August 1999, their views regarding options to accelerate and sustain the development and transfer of coastal adaptation technologies for compilation into a miscellaneous document and agreed to consider this issue at its eleventh session (FCCC/SBSTA/1999/6, para. 70 (a)).

B. Discussion

15. Submissions from Parties regarding their views on options to accelerate and sustain the development and transfer of coastal adaptation technologies were received from three Parties and are contained in document FCCC/SBSTA/1999/MISC.11. The secretariat has not identified any additional information on this subject, other than the information contained in document FCCC/TP/1999/1.

IV. COOPERATION WITH OECD/DAC

A. Specific mandate

16. The SBSTA, at its tenth session, requested the secretariat to continue to cooperate with the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD), in order to improve the availability of climate-relevant data from the reporting system of that committee (FCCC/SBSTA/1999/6, para. 70 (b)).

B. Discussion

17. As described in document FCCC/SBSTA/1999/2, the Development Assistance Committee secretariat, in cooperation with the secretariats of the Rio conventions, is undertaking a pilot study for the year 1998, to determine the feasibility of providing more comprehensive data on the financial assistance provided by developed countries in support of the objectives of the Rio conventions. Countries have been requested to classify individual aid activities against three new markers referring to the above conventions, in order to assess and single out specific

projects relevant to the objectives of the conventions which otherwise would be reported under a general marker named "aid to the environment".

18. The Development Assistance Committee secretariat is in the process of receiving and analysing preliminary data from a number of reporting Parties, and expects to complete the collection of data and the report of the pilot study by March 2000. The UNFCCC secretariat is planning to present the final results of the pilot study to Parties at the twelfth session of the SBSTA.

19. The secretariat conducted a preliminary review of some of the data received by the Development Assistance Committee secretariat. The review suggests that there is a potential to obtain a wide range of information relevant to the Convention process. If such a system were to be implemented, it may be possible to have, for example, the total annual bilateral official development assistance commitments for each OECD country broken down and specific information on relevant sectors, i.e. energy, transport, forestry and others. It may also be possible to determine whether the principal objective of this aid is specifically related to climate change, or more generally to other environmental goals.

Annex I

AFRICAN REGIONAL WORKSHOP ON TRANSFER OF TECHNOLOGY CONSULTATIVE PROCESS

Arusha, Tanzania
16-18 August 1999

Introduction

1. The objectives of the workshop, held in Arusha, Tanzania, from 16 to 18 August 1999, were to advance the understanding of special situations and needs of the African countries, and to generate information and ideas on practical steps to enhance the transfer of technology in Africa.

2. The workshop participants recognized that Africa is an immense and diverse region comprising countries and regions with very different sets of environmental, geographic, economic and social characteristics. At the same time, various combinations of African countries share many similar national and regional circumstances, both in economic and social terms, but also in terms of natural resources endowments and sensitivity to climate extremes and climate change.

3. For many African countries, the issue of climate change has tended to be separate from the mainstream economic development agenda. Consequently, the synergy that exists between development issues and addressing climate change has not been fully exploited. For many African countries, priorities such as food and water security, energy security, improving the quality of life and habitat, and sustainable economic growth and employment often take precedence over concerns about climate change.

4. Participants recognized that practical steps to address the concerns of climate change under the Convention would also need to simultaneously address the priority concerns noted above. Furthermore, actions to address concerns about climate change would need to involve the cooperation and participation of multiple stakeholders, including intergovernmental and multilateral organizations, national and local governments as well as the private sector and non-governmental organizations (NGOs).

Organization of the report

5. This report presents a summary of the workshop presentations and discussions. Most of the issues and questions contained in the annex to decision 4/CP.4 can be addressed by considering six sets of key questions. This report is organized according to the following six themes and related sets of questions:

(a) Technology needs
What are the technology needs of African countries?[1]

(b) Barriers to the development and transfer of technologies
How should Parties promote the removal of barriers to technology transfer? Which barriers are a priority and what practical steps should be taken?

(c) Capacity-building for technology transfer
What areas should be the focus of capacity-building, and how should it be undertaken, e.g. what kinds of activities, programmes and institutional arrangements?

(d) Technology information
What information on technologies is needed and how can this information best be identified, developed, stored, accessed, and provided to Parties?

(e) Transfer of technology mechanisms
Are existing bilateral and multilateral mechanisms for technology transfer sufficient? Are new mechanisms needed? If so, what are appropriate mechanisms for the transfer of technologies among Parties, in pursuance of Article 4.5 of the Convention?

(f) The role of the private sector
What role is the private sector playing in technology transfer? What additional role can the private sector play? What barriers prevent their greater participation?

TECHNOLOGY NEEDS

6. Many African countries were unable to report on specific technology needs due to a lack of the human and organizational capacities needed to conduct adequate technology needs assessments. However, some general themes emerged. Africa's technology needs span the range of greenhouse gas limitation and adaptation technologies. In the case of greenhouse gas

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[1] This question is not explicitly contained in the list of issues and questions in decision 4/CP.4. However, many of the presentations and much of the discussion at the workshop raised this question as a fundamental starting point for the consultative process.

limitation technologies, rural electrification as well as technologies to replace household consumption of biomass (wood fuel) are particular priorities for a number of countries. Energy technologies used in the industrial sector are also a priority. Key adaptation technologies include technologies to improve, in a sustainable manner, water supply, agriculture and food production. It was noted that adaptation technologies are not generally emphasized as much as mitigation technologies because of a lack of information on vulnerability and adaptation and not because they are unimportant in African countries.

In addition to "hard" technologies such as infrastructure and equipment, participants discussed the need for "soft" technologies such as know-how, practices and related capacity-building. These needs are discussed in the remainder of the report in the context of the various barriers to technologies and practical steps to build capacity to address such barriers.

BARRIERS TO THE TRANSFER OF TECHNOLOGIES

Participants at the workshop identified several important general barriers to the transfer of environmentally-sound technologies to African countries. The identified barriers, however, do not represent a comprehensive list for African countries. The identification and elaboration of barriers to the development and dissemination of environmentally-sound technologies was recognized as an important step in conducting a technology needs assessment and identifying appropriate actions to enhance the dissemination of environmentally-sound technologies in the Africa region.

The barriers described below are organized into five categories: economic and financial; organizational; institutional; human resource related; technological and technology information.

Economic and financial

10. Many African countries are among the poorest in the world. Several participants noted that the overall poor economic situation in many African countries prevents the development and transfer of environmentally-sound technologies. The poor economic base and low incomes lead to low levels of savings and investment.

11. The existence of market failures in many African countries also hinders the development and deployment of environmentally-sound technologies. Market barriers relate to the lack of incentives and in some cases the existence of disincentives to stimulate the development of markets for environmentally-sound technologies.

12. The structure of markets in African countries is often characterized by oligopolies. Such market structures often inhibit establishing a fair pricing system. In many cases, the financial systems fail to give correct price signals and therefore energy efficiency measures may not be introduced.

Several participants noted that the size of the markets in African countries is relatively small. Additional transaction and development costs are incurred by attempting to stimulate the deployment of technologies in small markets. Thus, small markets pose a problem to business as they usually have time to relate on investments.

The majority of energy projects implemented in the region are supported by loans. Risk aversion on the part of local loan providers was also identified as a barrier. Environmentally sound technologies are frequently overlooked by loan providers as they are often viewed as risky investments.

Organizational and institutional

The participants noted that the business environments often discourages participation by the private sector, investors and other non-governmental stakeholders in many African countries. The investment environment includes: non-transparent legal systems, relatively weak enforcement mechanisms for laws relating to investments and companies, long arbitration processes, unclear property rights, high legal fees, institutional inertia, the frequently monopolistic or oligopolistic structures of markets, inadequate macro-economic policies, lack of adequate communications capabilities, and a scarcity of indigenous firms for subcontracting.

The participants also discussed the widespread lack of capacity barriers within African countries that appear to include: non-existent acquisition of skills and knowledge from external sources, and the crowding out of indigenous skills. The absence of these important cultural policies presents a barrier to acquisition and deployment of environmentally sound technologies in the region.

In the specific case of transnational technologies, a lack of coordination among the many different projects being implemented in the region was noted. Insufficient communication between the implementing institutions of these projects at the local, national and regional levels is a constraint to their well-timed market deployment of such technologies.

The participants noted that African countries possess inadequate institutional capacity to properly identify technologies under the Convention. The lack of this capacity makes it difficult for countries to communicate their needs to other Parties and participate in programmes for technology transfer and development.

The participants also discussed the general lack of communication capacity in many African countries to influence global thinking on local and foreign technology development and implementation initiatives. This factor also translates into a lack of local ability to participate in the transfer of technology within the framework of the relevant programmes.

20. The meeting also identified a lack of institutional capacity to conduct technology research and development, bench-marking, piloting and commercial transfer of appropriate environmentally-sound technologies. This contributes to reliance upon foreign technology which may not be appropriate for the specific needs of African countries.

21. The meeting also noted that there is insufficient coordination on the part of donor countries between their foreign aid programmes providing technical cooperation and their research and development programmes for new and emerging technologies.

22. Participants noted that institutional inertia, or the resistance to change, is another obstacle and is worse in a relatively uncompetitive environment, as is the case in many African countries. This generates inefficiencies and deters the introduction of new methods and techniques to improve productivity.

Human resource related

23. Participants frequently noted a general lack of appropriate training in the region. For example, training in project development, management and operations related to national utilities is often disjointed and mainly offered only by international organizations.

24. The participants also noted a general lack of understanding of imported proprietary technology. The participants further noted that the relatively low level of technological capability in African countries is a significant barrier to technology transfer and development. This is principally due to the lack of an appropriately-skilled technical workforce.

Technological

25. The workshop participants noted the lack of institutional infrastructure to support the development and implementation of appropriate technology standards and regulations based on local conditions. This leads to degraded technology performance and inappropriate technology sourcing. The lack of institutional infrastructure is a significant barrier to appropriate technology development and deployment in the region.

26. The participants also discussed the general lack of technical ability in the region to use and manage imported proprietary hardware. Further, this deficit of technological know-how diminishes the capability to alter, improve or retrofit foreign technologies for local conditions or to bypass a problem without recourse to the supplier.

27. The participants also noted that normal engineering procedures for testing, commissioning, and supporting equipment purchases are often lacking. This is a common problem, for example, with renewable energy technologies and contributes to their poor performance in many applications. It also contributes to poor maintenance programmes and poorly operating equipment. As a result, many newly introduced technologies fail to meet operational expectations.

Technology information

28. The participants also recognized that there is a poor technical information base in many African countries which seriously affects the capacity for effective identification and selection of technologies. Access to information is essential to the technology transfer process.

29. Many technically competent personnel in African countries lack access to international information, and this results in sub-optimal choices. Often there is also a lack of local data required for the design of good investment projects. These data, such as performance data and supporting banking and insurance information, are critical in making good investment decisions.

30. It was suggested that African countries require extensive and open access to information on both indigenous and emerging technologies. It was mentioned that most relevant information is only available to and accessible by government ministries, and in particular the national focal point.

31. Some participants noted that there is a lack of available information on publicly-owned technologies. In many instances, and particularly in the case of simple technologies such as those traditionally used for many processes in African countries, there are possibly many publicly-owned technologies which could improve or replace existing technologies.

CAPACITY-BUILDING FOR TECHNOLOGY TRANSFER

32. Throughout the workshop many suggestions on practical steps to build capacity for technology transfer were presented or discussed. The various ideas are summarized below under six categories:

- Assisting in the identification of technology needs;
- Addressing economic and financial barriers;
- Improving organizations and institutions;
- Strengthening human resources;
- Overcoming technological barriers; and
- Strengthening access to appropriate technology information.

Assisting in the identification of technology needs

33. Acquiring the necessary resources and skills to identify technology needs is a priority for African countries. These assessments can be conducted at the national or regional level and must take into account the current profile of existing technologies as well as those being demonstrated and tested. An important component of any technology needs assessment should be the identification of local capacities and competencies to manufacture and maintain various technologies.

34. In the case of many African countries, technology needs assessments will require the provision of financial or in-kind assistance to develop and strengthen existing institutions to enable them to undertake country-driven approach.

Addressing economic and financial barriers

35. Several practical steps were suggested which could help many African economies. A key theme was the introduction of new and innovative financing mechanisms, as well as appropriate training and technical support for local, small and medium-sized enterprises and entrepreneurs to engage in the production or distribution of environmentally-sound technologies, know-how and practices.

36. African participants suggested that such financing and training should target:

- Technologies or practices which improve productivity and generate incomes, particularly among the rural poor,
- Enterprises which specifically contribute to the transfer of technologies across national borders; and
- Projects which allow Africans to take equity partnerships in cleaner production businesses.

37. Taking steps to introduce economic pricing, including the removal of cross-subsidies for electricity prices, requires several different kinds of capacity-building. The most fundamental is appropriate training to help countries formulate, integrate and implement national energy and environmental policies. Other training and awareness-raising within governments could assist in the removal of discriminatory import taxes on environmentally-sound technologies and the introduction of tax incentives.

38. Specific awareness-raising and training for loan providers and financiers could be introduced possibly with the development of new international finance windows for assistance to enhance the financial resource base explicitly for environmentally-sound technologies.

Improving organizations and institutions

39. Several of the organizational and institutional barriers listed above can begin to be addressed by identifying and implementing processes to integrate the goals of technology transfer under the Convention within the existing framework of development, energy, environment and natural resource development policies. Such an integrated approach may help to ensure that technologies wanted or applied are consistent with national or regional sustainable development goals. Another possible step which was suggested was the establishment of

national implementing frameworks for technology transfer (e.g. by the creation of "technology transfer desks"). A related practical step could be the identification of best practice models for building capacity related to technology transfer.

40. The participants also suggested the enhancement of information sharing and networking among African focal points and between the focal points and key national institutions, as well as the strengthening of the capacities of national focal points to develop and implement national programmes to promote the diffusion of environmentally-sound technologies and know-how.

41. Various practical steps were put forward which may address barriers which relate to the lack of a conducive enabling environment for the development and transfer of technologies, know-how and practices. These include:

(a) The encouragement of greater private sector participation through incentives such as tax reforms and economic pricing;

(b) Better protection of intellectual property rights;

(c) Removal of regulatory barriers such as those limiting grid access for renewable energy technologies;

(d) Support to facilitate non-governmental organizations to mobilize actions at the societal level, help secure financing, assist in the removal of certain barriers, help raise public and political awareness to overcome barriers such as those which are sensitive because of vested interests, and play a role in participatory approaches to help the rural poor; and

(e) Support to assist the development of partnerships between the private sector and non-governmental organizations, such as joint ventures directly with owners and producers of technologies to increase capacity-building and technology transfer.

Strengthening human resources

42. Training was mentioned many times. Enhancing and expanding the pool of human resources and skills necessary to identify and implement national and regional technology transfer goals involves the provision of appropriate training at several levels, including the centre of government; government departments and national utilities; the private sector; the banking and finance sector; non-governmental organizations; and the local community.

43. Given the limited resources available for training and the wide range of training needs, several participants supported the idea of focusing on training at national and regional centres rather than more expensive training programmes which are available internationally.

44. Greater utilization of African experts from the UNFCCC roster of experts was suggested as a way of drawing upon and building human resources at the national and regional levels in Africa.

45. One additional suggestion which could strengthen human resources in the long term is the introduction and/or improvement of energy studies in scientific and educational institutions.

Overcoming technological barriers

46. A key message from the workshop was that capacity-building in this area should reinforce the existing technological capabilities of African countries (for example, the development and enhancement of programmes to coordinate biomass activities, networks and projects at the regional level). This would help to ensure that technologies are developed with an "eye for the African market". One particularly effective way to build on existing strengths and capacities in different mitigation and adaptation fields could be through the strengthening of ties between different African regional groups to promote regionally-driven research and development and market stimulation of environmentally-sound technologies, know-how and practices. Such cooperation could also help to simulate more conducive enabling environments at the regional level for such technologies.

47. A related practical step could be activities and networking to improve coordination among the development assistance and technical cooperation/research and development communities and between donor countries.

48. The development and introduction of appropriate technology and product standards based on local conditions was identified as a way of overcoming several technological barriers. This could encourage the selection and implementation of environmentally-sound technologies such as off-grid renewable energy systems.

Strengthening access to appropriate technology information

49. Participants identified a number of priorities in relation to improving access to and dissemination of appropriate information on environmentally-sound technologies, know-how and practices in the African region. These included:

(a) Improving access to information available at international centres;

(b) Expanding such access to cover various kinds of information currently not available, for example, information on the design requirements for good investment projects, performance data, banking and insurance information, and information on emerging technologies;

(c) Support to assist cooperation among African countries in sharing information on research and development, and market simulation, for environmentally-sound technologies and know-how;

(d) Greater networking among regional information centres to assist the transfer of solutions and approaches which have been developed within the African region; and

(e) The expansion or establishment of national and/or regional cleaner production centres and centres for innovation and enterprise development or their equivalents.

50. A specific suggestion was the establishment of a "rights bank" or pooling system for the dissemination of information on publicly-owned environmentally-sound technologies, know-how and practices.

TRANSFER OF TECHNOLOGY MECHANISMS

51. A number of participants expressed their belief that Africa has not benefited adequately from past efforts to improve access to the mechanisms to transfer environmentally-sound technologies and know-how under the Convention. Many African industries and services are small and medium-sized enterprises which to date have found it difficult, if not impossible, to be informed of and to engage in the intergovernmental processes under the Convention.

52. A message brought forward at the workshop confirmed that technology transfer represents an opportunity for international cooperation under the Convention. It was recognized that the principles of such cooperation were neither charity nor goodwill, but could be based on the development of strategic partnerships among governments, the private sector and other stakeholders among the full range of developed and developing countries. Intra-continental or so-called "South-South" partnerships among African countries were identified as a particularly important and potentially effective mechanism for technology transfer.

53. The Global Environment Facility (GEF) has been testing and demonstrating a variety of financing and institutional models for promoting technology diffusion. A number of climate-relevant projects have been implemented in the African region in the GEF project portfolio for the period 1991-1999. UNDP and UNEP also presented their relevant experiences in implementing projects in Africa; and UNIDO presented its activities related to the development of technology information centres.

54. A number of possible actions for multilateral institutions and bilateral donors were suggested. These actions include:

- Greater facilitation of stakeholder dialogue;
- Greater support for participatory and integrative approaches that aim at building consensus on priorities and strategies;
- Support for pilot and experimental activities;
- Efforts to ensure that market reforms take environmental concerns into account;
- Regular reports on efforts to strengthen coordination and exploit synergies among their activities;
- Pursuing greater coordination among themselves; and
- Promotion and support for research and development that meets the specific needs of African countries

THE ROLE OF THE PRIVATE SECTOR

55. The role of the private sector in the context of Africa was discussed primarily within the framework of governments responsibility to encourage the right enabling environment. Transfers of public funding from developed countries to developing countries are stagnating or declining, a trend that is not likely to be reversed in the immediate future. It is therefore necessary to make the best possible use of existing resources and at the same time mobilize private sector investment. However, there was limited participation from the private sector at the workshop. The private sector from both developed and developing countries should be given greater encouragement to participate in future workshops and activities.

POSSIBLE NEXT STEPS

56. Over the course of the workshop and culminating with the discussion in the final session, many participants clearly expressed their view that further progress towards identifying meaningful and effective actions within the framework of the consultative process would best be achieved by conducting the following three necessary and important steps:

(a) Implementation of national and/or regional assessments to identify and prioritize African countries' needs for environmentally-sound technologies, know-how and practices;

(b) Further identification and description of specific barriers relating to priority technologies, know-how and practices identified by technology needs assessments and practical steps to address those barriers; and

(c) The identification and implementation of meaningful and effective actions that could be undertaken by relevant stakeholders to enhance the transfer of technology under the Convention.

57. Participants were cautious about determining and agreeing upon a set of meaningful and effective actions for Africa in the context of the consultative process at this stage.

58. In view of this, African participants agreed that there is a need to continue the dialogue on the transfer of technology. African participants proposed the establishment of an African expert group on the transfer of technology to continue the dialogue initiated by this workshop and which could help to synthesize and expand upon the ideas presented at this workshop and develop proposals for further activities and initiatives for Africa.

59. In his concluding remarks, the Chairman of the SBSTA welcomed the workshop as a good start to the consultative process and noted that the experience gained from this first workshop would be very useful for the preparation of the two future workshops in Asia and the Pacific and in Latin America and the Caribbean.

Annex II

CTI/ INDUSTRY JOINT SEMINAR ON TECHNOLOGY DIFFUSION IN EASTERN EUROPE

Bratislava, Slovakia
14-17 July 1999

Introduction

1. Technology diffusion in Eastern Europe in the context of the consultative process referred to in decision 4/CP.4 was the theme of a seminar organized by the Climate Technology Initiative in cooperation with the secretariat, held in Bratislava, Slovakia, 14-17 July 1999.[1]

2. The seminar was an opportunity for experts and government representatives from Eastern European countries to present their views on issues related to the development and transfer of environmentally-sound technologies and know-how in the context of the issues and questions listed in the annex to decision 4/CP.4.

3. A selection of key messages relevant to the consultative process emerging from the seminar is provided and summarized by the secretariat below.

Eastern Europe has significant and in many cases advanced capacities to assess climate technology needs, and to formulate and implement climate strategies

4. Eastern European countries have significant institutional capacities to assess their technology needs and implement climate technology strategies. The region has a highly educated population with highly qualified engineers. Moreover, several advanced energy technologies have been developed in Eastern European countries.

5. The technology needs of Eastern European countries in relation to their energy efficiency and climate goals are relatively well understood. Technology needs were identified in a number of areas, including energy efficiency, combined heat and power or co-generation technologies, and renewables, including biomass technologies. District heating systems were a frequently cited example. District heating infrastructure in Eastern Europe is vast: approximately 200 million customers are connected to district heating systems. Significant investment for modernization is needed. Pipes need re-insulating, and valves and controls replacing. Sufficient monitoring equipment is also required.

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[1] Climate Technology Initiative/Industry Joint Seminar on Technology Diffusion in Eastern Europe, Bratislava, Slovakia, 14-17 July 1999, co-sponsored by the European Commission DG XVII, NEDO, Japan, the US Department of Energy and USAID, in cooperation with the UNFCCC secretariat.

Eastern European governments are already actively pursuing improvements in energy efficiency

6. In Eastern Europe, the issue of technology transfer must be seen in the context of the need for finance and innovative financing arrangements for investment in energy projects. Energy efficiency is a well-internalized goal of government. Most, if not all, Eastern European countries have a specific ministry responsible for overseeing energy efficiency policies.

7. Eastern Europe has gained significant experience regarding practical examples of cooperative energy efficiency projects and programmes, from a large number of AIJ projects (for example, in the Czech Republic, Latvia, Slovakia and the Russian Federation). In many cases, project evaluations emphasized the need for cooperative approaches resulting in the sustainable transfer of skills, and knowledge and capacities to introduce and maintain advanced energy technologies rather than the implementation of 'turn-key' projects.

Barriers to the transfer and deployment of climate technologies play a critical role, particularly those related to acceleration of innovations in financing and legal reform

8. While many of the general set of barriers (institutional, political, technological, economic, information, financial and cultural) normally encountered in relation to the development and transfer of climate-related technologies are experienced in the region, particular emphasis was given to barriers and opportunities related to financing and legal/policy frameworks.

9. Financing energy efficiency projects was identified as a particularly important element of the diffusion of climate relevant technologies in Eastern Europe. "Soft" technologies such as information and approaches concerning financing mechanisms (rather than hard technologies *per se*) was identified as especially critical to enable the transfer of technologies.

10. In addition to financing, the lack of adequate legal and policy frameworks also emerged as critical barriers to the enhancement of technical cooperation and investment. The enhancement of private sector involvement is particularly sensitive to the nature and pace of change in the legislative and policy environment. Many Eastern European governments are already in the process of reforming energy laws and taxes in order to achieve their policy goals.

11. The role of government procurement policies as a means of creating market pull for energy efficient technologies was also highlighted.

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